PULP & PAPER

OCTOBER 1959

Pellet Pulp Report

page 70

Testers Discuss Fibers

page 83

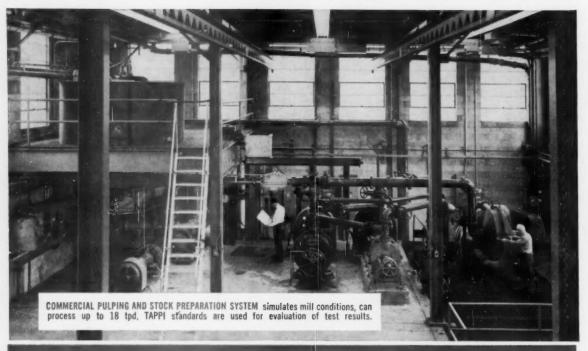
Trend to PVC Pipe

page 90

Everything's double for Buckeye

page 78





PULP and PAPER RESEARCH CENTRE Serves the Papermaker Three Ways:

- Basic Industry Research
- Independent Contract Research
- Field Technical-Sales Services



The Pulp and Paper Research Centre is Bolton's newest service to the Papermaker. As a contribution to the industry, the Centre conducts basic research and analysis in fibre treatment and stock preparation systems as well as machine and process design.

Another important function of the Centre is to engage in independent contract research and development projects for papermakers.

Field technical-sales services in applications of pulping and fibre treating are now available. These include analytical, microscopic, evaluative, and design and start-up of complete stock preparation systems, including controls and instrumentation.

Facilities of the Centre include three laboratories, a pilot plant, and a commercial scale pulping and stock preparation system.

If the efficiency of your fibre treatment or stock preparation system can be improved it may pay you to use contract research or field technical-sales service. WRITE PULP AND PAPER RESEARCH CENTRE, JOHN W. BOLTON & SONS, LAWRENCE, MASS.



PULP TESTING AND WET LABORATORY. Tests strengths of various vegetable fibres, drying strengths of papers, etc., using latest equipment. Humidity and air control test room (not shown) is used for physical tests.



PILOT PLANT. Commercial operations are simulated for flexible experimentation and testing of small scale stock runs, new equipment and processes.



The "Fibre-Flash" drying process for use with all types of pulp consists of dewatering the pulp, fiberizing the concentrated pulp material thoroughly to insure uniform drying, evaporation of the fiber-bound water to the required degree of dryness and baling or bulking the material into convenient form for storage or shipment.

The drying medium, either combustion gases or hot air, carries the material to be dried through separate stages of the fiber-suspension-type flash dryer. The relatively high intake temperature flashes-off the surface water and the drying tower provides the necessary time element to permit a complete heat exchange to extract the remaining moisture in the fibers. Drying occurs at high evaporation velocity which maintains a low fiber temperature.

Minimum capital investment and operating cost.

Peak thermal efficiency.

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Simplicity of equipment with moving parts at a minimum.

Elimination of ever-heating or case-hardening effect.

Ease of re-pulping.

RICE BARTON CORPORATION

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The Bird Centriffler gets rid of junk and heavy dirt early - right at the pulpers, before it has a chance to get broken up and into the sheet.

You avoid a large part of the heavy cost of repair and maintenance of pumps, piping, refiners, screens, wires and felts.

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CANADIAN INGERSOLL-RAND COMPANY, Limited, Montreal

BIRD MACHINE'S

PULP & PAPER

Reader's Guided Tour

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P&P's Public Interest Award; National Safety Congress in Chicago; Russia and "The Great Thaw."

Pulp Pelleting and Bulk Handling

70



In an exclusive article PULP & PAPER reports the latest developments in the pulp pelleting process. Laboratory data from three pilot plants in Australia and U.S.A. are discussed by an expert in the field. His conclusions regarding this revolutionary process list—for the first time—its advantages and disadvantages.

95% Recovery at Foley

78



In an on-the-spot report from PULP & PAPER's Southern editor is given some hitherto unpublished information about Buckeye Cellulose Corp.'s new "image" dissolving pulp mill in Foley, Fla., where "everything is doubled."

Extremely flexible operation makes possible the production of either hardwood or softwood dissolving pulps or softwood paper pulps. A double screening system precedes the bleaching operation. Most important is the highly efficient recovery of furnace gases.

International Experts on Fiber Bonding

Technical men take opposing sides at TAPPI's annual Testing Conference. They discuss two rival concepts—"boiled macaroni" versus "fuzzy fibrillation."

PVC Pipe in Paper Mills

90

83

In another exclusive, PULP & PAPER spells out the uses of polyvinyl chloride corrosion-resistant pipe in the paper industry. Installation and maintenance information guides the man in the mill to the proper use of PVC pipe.

Air Pollution Control

92

Swedish-Mexican development in use at the kraft mill of Fabricas de Papel Loreto y Peña Pobre new Mexico City is expected to result in "almost perfect" odor elimination. People living near the mill assist in the operation as "observers."

CIRCULATION DEPT., 500 Howard St., San Francisco 5, Calif. C. C. Baake, Circ. Mgr. Send subscription orders and changes of address to PULP & PAPER, above address. Include both old and new addresses.

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CONFUSED ABOUT PLASTIC PIPE?

(MOST EVERYONE IS)

Here's your guide

U. S. Uscolite® CP acrylonitrile-butadiene-styrene copolymer (ABS-I) pipe is best where maximum resistance to impact is demanded. It will safely handle most chemicals of industrial importance at working temperatures up to 170°F. This is the major plastic pipe used by chemical processing industries.

U.S. Uscolite RV polyvinyl chloride (PVC-I) pipe is best for extremely active oxidizing agents such as strong sulphuric, nitric and chromic acids. This unplasticized, unmodified Type I PVC has high impact strength and handles temperatures up to 140°F, far in excess of normal requirements.

Uscolite HT (ABS-II) pipe is a new addition to the resinrubber compounds. HT stands for exceptionally High Tensile qualities, plus much better retention of physical properties at High Temperatures.

These types of Uscolite Pipe cover all requirements, not only because they are virtually immune to internal and external corrosion, but they are non-contaminating, odorless,

impart no taste or discoloration. Because of these qualities they are approved by the National Sanitation Foundation for carrying drinking water. The use of Uscolite results in a saving of appreciable dollars in installation costs and reduction in man-hours. The skills to install metal pipe are not required to install Uscolite. Assembly can be accomplished in half the time. Not one foot of Uscolite Pipe has ever failed in service when used in accordance with our recommendations.

A fourth pipe, UscoFlow HT (ABS-II) is a black utility pipe, especially suitable where low first costs are a factor. It's a blend of styrene-base resin and synthetic rubber for good impact resistance and high tensile strength. UscoFlow is the ideal answer to builders and large developers who are seeking long-lived, maintenance-free pipe for plumbing. We invite detailed inquiries or call your "U. S." plastics

We invite detailed inquiries or call your "U. S." plastics distributor. He has the *largest* line of plastic pipe and fittings, plus an experienced background to settle any and all questions about which pipe to use.



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The Editor Reads His Mail



Address letters to The Editor, PULP & PAPER, 1791 Howard St., Chicago 26, Ill.

How St. Francisville Mill **Treats Water for Boilers**

-Seattle, Wash. Editor: This refers to your August issue of PULP & PAPER, in which you discuss the new St. Francisville Paper Co. mill. There are two errors on Page 75 in connection with the steam plant that we would like to call to your attention. Whereas you indicate the rating of the boiler to be "a $110,000 \ hp$ ", and you possibly meant $110,000 \ pphr$, actually the contract continuous capacity rating of the boiler is 120,000 pphr. In connection with the boiler feedwater makeup treating plant, your article mentions this as having a "hot process unit with a magnesium dioxide softener, including chemical feed system, three filters, three zeolite softeners, a recirculating pump, single wash pump and duplex booster pumps. Actually, the soften-ing plant does not have a hot process unit with zeolite softeners, filters, etc., as specified, but instead it is a demineralizing plant, comprising two cation exchangers, from which the partially treated water flows to a degasifier located above a cold well from which the partially treated and degasified water is pumped by either of two stainless steel pumps through two anion exchangers and thence to either the deaerating heater or to the steam plant hotwells.

H. J. BYRNE, Crown Zellerbach Corp. Central Engineering Office Eds. note: The above is from "headquarters," and that's that.

Predicts Big Growth in Europe

-Stockholm Editor: I have been carefuly reading your various articles on Europe and, in fact, generally with fullest concurrence in what you have observed over here. For a long stretch of years, my field of activity in the pulp and paper industry required travel to many countries, including Russia, and your throwing light on conditions as they are in these countries, will prove very constructive to our industry. On the understanding that the political world situation will allow fairly peaceful commercial intercourse, I am sure that in the next several years, the corrugated board consumption, along with the entire packaging develop-ment outside of North America, will make such strides that projects in Northern Europe for supplying these needs will not be nearly enough.

FOLKE SUNDBLAD Commercial consultant, pulp and paper.

MEETING DATES CALENDAR

October 1 Michigan Div. PIMA-Kalamazoo Valley Hotel Harris, Kalamazoo, Mich.

October 6 Lake States TAPPI Engineering
Allis-Chalmers Plant, Milwaukee, Wis.

Golden Gate District TAPPI Claremont Hotel, Berkeley, Cal.

Fourth Deinking Conference Roger Smith Hotel, Holyoke, Mass.

October 8-10 Pa.-N.J.-Del. Division, PIMA Traymore Hotel, Atlantic City, N.J.

October 11-13 Forest Products Research Soc., Mid-South Section Beaumont, Texas

October 12-15 14th TAPPI Engineering Conference Penn-Sheraton Hotel, Pittsburgh, Pa.

October 14-16 Southern-Southeastern Division, PIMA Edgewater Gulf Hotel, Edgewater Park, Mis.

October 19-23 47th National Safety Congress, Pulp & Paper Section Conrad Hilton Hotel, Chicago

October 26-28 Packaging Institute
Statler Hotel, New York, N.Y.

November 4-8 TAPPI Alkaline Pulping Conference
Robert Meyer Hotel, Jacksonville, Fla.

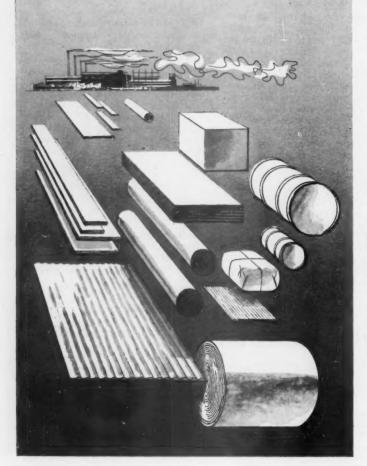
November 5 Michigan Div. PIMA Hotel Harris, Kalamazoo, Mich.

November 9-10 National Paperboard Association New York, N.Y.

November 10 Lake States TAPPI Wisconsin Rapids, Wis.

Society of American Foresters, 59th Annual Meeting
Sheraton-Palace Hotel, San Francisco

SERVICE



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No matter what the grade of pulp
may be, our service reflects over 70
years' experience in satisfying our
many customers. Through the
Gottesman Organization, pulp
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Sulphite, Bleached Hardwood,
Groundwood, Bleached, Semi-Bleached
and Unbleached Kraft in the quality
and quantities you need for really
efficient production!



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MONTHLY REPORT - WORLD NEWS

NEW NAME, NEW MILL . . . Rayonier Canada Ltd. will build a bleached sulfate pulp mill at Woodfibre, B. C., Canada. The firm, formerly Alaska Pine & Cellulose Ltd., will replace its sulfite mill that closed down in June 1958. Plans call for completion of the kraft mill in early 1961. (Story in this issue.)

TWENTY-FIVE NEW MILLS . . . is the aim of the current Seven-Year Plan of the Soviet Union. According to Bumashnaya Promyshennost, monthly journal of the Soviet industry, cellulose production will reach 4,800,000 metric tons annually by 1965, while paper output will rise to 3,500,000. In addition, rayon pulp production is expected to reach 580,000. Biggest increase is seen for board production, which is to exceed 1958 production 20 times by 1965.

PAPER MACHINE NO. 2 . . . will increase the annual newsprint capacity to 180,000 tons at Tasman Pulp & Paper Co. Ltd., Auckland, N. Z. . . . It has also been announced that Bowater Paper Corp. Ltd., London, England, has invested \$2,800,-000 in the New Zealand firm.

BAGASSE NEWSPRINT IN INDIA . . . will be a reality as soon as the "technical feasibility of the new process (developed in Germany) has been certified and guaranteed by experts." According to M. M. Shah, union minister for industries, the proposed mill will be located in Shakkarnagar (Andhra Pradesh), will have a 100-ton daily capacity. The West German government has lent the services of an expert, who is now examining the process.

NOTES ON THE FRENCH INDUSTRY . . . Paper and board appear to have suffered less than other economic sectors during the recent recession. Definite signs of recovery promise well for the remainder of the year . . . In October 1958—for the first time since 1955—the total value of French exports of paper and board (in bulk) exceeded imports by nearly 450, -000,000 francs (\$900,000).

BAMBOO WILL BE THE RAW MATERIAL . . . at a pulp and paper mill reportedly planned by Bataan Pulp & Paper Mills Inc., the Philippine Is. The privately-owned firm recently was granted a \$5,300,000 loan from the Development Loan Fund of the U.S.A. Output will include printing, wrapping and stationery papers.

NEW MACHINE FOR BRITISH MILL . . . C. Townsend Hook & Co. Ltd. has installed at its Snodland, Kent mill a Fourdrinier paper machine for the manufacture of magazine printings at a maximum of 1200 fpm. The Black-Clawson International Ltd. unit has a trim width of 168 in.

AMERICA IS ON THE BRINK . . . of another industrial revolution, according to Melvin H. Baker, board chairman of National Gypsum Co., U.S.A. "Present methods of doing business will have to be discarded and new methods adopted if a company is to prosper in the revolutionary period ahead," he said. The decade of the 60s, Mr. Baker asserted, will be an age of "unprecedented high-level, sustained growth, an era of change that will bring new marketing, manufacturing and management techniques."

EUROPEAN DIVERSIFICATION . . . for the Bowater organization is heralded by the acquision of three firms. Bowater Cello SA will carry on the business of Cello SA, folding carton manufacturer in Ghent, Belgium. Bowater Prot SA will continue the operation of Etablissement Prot Freres SA, manufacturer of flexible packaging in Rheims, France. Perrone SpA, Genoa, Italy, maker of corrugated fiberboard containers, becomes Bowater Perrone SpA.

GO-AHEAD IN SWAZILAND . . . for a £10,000,-000 (\$28,000,000) pulp mill. Partners in the South African venture are Courtaulds Ltd. and Colonial Development Corp. A joint firm, Usutu Pulp Co. Ltd., has been set up to manufacture unbleached sulfate. Annual capacity: 100,000 short tons.

B.F.Goodrich

All B.F.Goodrich Grommet V belts are double-matched at no extra cost

B.F. Goodrich V belts now have 40% greater horsepower rating

ALL B.F.Goodrich V belts now have 40% greater horsepower rating. This higher capacity rating was formerly found only in high capacity belts, but now costs no more than former standard belts. This means that lighter, more compact, and lower cost drives can now be used, because these B.F.Goodrich belts carry the horsepower needed for efficient drives using fewer belts at standard belt prices. And all B.F.Goodrich Grommet belts are double-matched.

Double matching assures you that

a set of B.F.Goodrich V belts are of equal length when installed and will stay uniform in length for the life of the belts. When V belts of different lengths are put on the same drive, longer belts loaf, while shorter ones carry all the load and fail quickly. B.F.Goodrich double-matched belts are measured twice for uniform length, once when manufactured and again after storage. Only belts that are of equal length when manufactured and after storage are grouped into sets.

Grommet construction is exclusive

in B.F.Goodrich V belts. Grommets are two extra strong cord loops, inside the belts, like twisted cables, except they are endless. Unlike ordinary belts, there are no center cords in the Grommet belt, so it is more flexible, can "give" temporarily and absorb shock loads.

Let your B.F.Goodrich distributor show you how this higher capacity, longer belt life, ability to stand hard use, can reduce your V belt costs per year and make other savings in operating and maintenance costs. B.F.Goodrich Industrial Products Co., Deps. M-672, Akron 18, Ohio.

B.F.Goodrich v belts

MONTHLY REPORT - WORLD NEWS

INCREASED PRODUCTION IN FINLAND . . . where Yhtyneet Paperitehtaat Oy (United Paper Mills Ltd.) has embarked on a large-scale modernization program. Included: two new digesters, enlargement of the bleaching dept., expansion of water purification facilities and installation of a 156-in. (4-m) Wartsila-koncernen AB paper machine. The unit will produce wood-free printing and writing papers and paperboard at speeds of up to 1640 fpm (500 mpm).

ANOTHER MILL FOR VANCOUVER IS., CANADA... seems a certainty, but whether the end product will be woodpulp or paper is not definitely decided. Presently, the only mill on the west coast of the big island is that of MacMillan & Bloedel Ltd., Port Alberni, B.C.

NEWS FROM CHILE . . . Bosques de Pinhue del Carmen SA is reportedly planning the construction of a 200-ton newsprint mill near Chiguayante. . . . Cia Manufacturera de Papeles y Cartones SA is said to have completed installation of an additional drying plant at its San Pedro mill. This would increase newsprint production by some 20%.

NEW SWEDISH METHOD OF MAKING SULFITE CEL-LULOSE... from pine wood instead of fir (developed by Stora Kopparbergs Berglags AB) has been adopted by another large firm, Mo och Domsjo AB. Its sulfite mill at Domsjo is the second plant in the world to use the process. Special equipment has been installed to ensure almost complete recovery of chemicals, which are more expensive than those required in the conventional method.

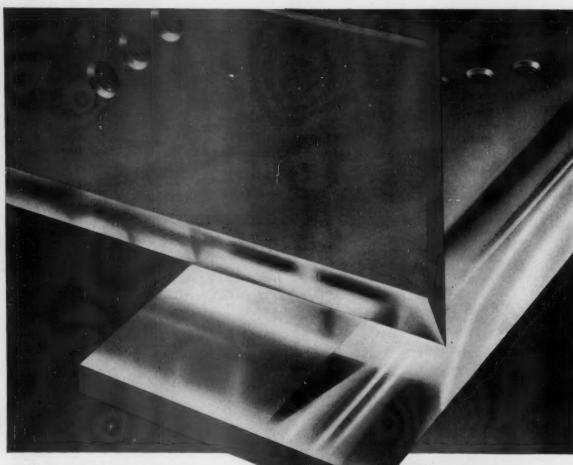
OVER-CAPACITY MAIN THREAT TO STABILITY
... in the Swedish pulp market, according to Axel Enstrom, head of Svenska Cellulosa AB. Because of the production curtailment of certain grades and the somewhat increased demand this spring, it has been possible to reduce stocks. It is likely, he says, that the market will continue stable provided that the output reduction agreed upon can be maintained.

PAPER-BASE DISPOSABLE CLOTHING . . . is being tested again at the Brooke Army Medical Center, Fort Sam Houston, Texas U.S.A. The items: surgeon caps, surgical gowns, nurses' scrub gowns, operatin boots, patients' examination gowns, dental bibs, surgical masks—even paper bed "linens."

80.8% INCREASE IN SCANDINAVIAN PULP SHIPMENTS TO THE U.S.A. . . . during the first six months of 1959 has been reported by the Assn. of Pulp Consumers Inc. Of the three major European suppliers, Sweden has captured the lion's share of the enlarged U.S. tomage. Of the total increase this year (almost 80,000 tons), Swedish pulp accounted for about 77%. By grade, Sweden captured 65% of the increase in bleached sulfite shipments, 90% in bleached sulfate and 59% in unbleached kraft.

NEW MILLS IN THE SOUTH, U.S.A. . . . Ground has been broken for the \$30,000,000 kraft mill of Tennessee Pulp & Paper Co. at Counce. Production is set for early 1961, with 400 people on a \$2,000,00 payroll. . . Bowaters Carolina Corp.'s new \$38,000,000 semi-bleached sulfate pulp mill near Rock Hill, S.C., has started production on a continuous basis. Annual capacity: 134,000 tons. . . . Work is underway on the \$27,000,000 expansion program at Rome Kraft Co., Rome, Ga. Included in the project that will double the plant's facilities will be a 254-in. 500-ton-per day paper machine. In charge is Rust Engineering Co. (Rome Kraft is owned jointly by Mead Corp. and Inland Container Corp.)

FIRST PULP INDUSTRY CASUALTY . . . in the lengthy British Columbia, Canada, logging strike was the Port Mellon bleached sulfate mill of Canadian Forest Products Ltd. (Howe Sound div.). Nearly 280 workers were out of work because of curtailed chip supply. The strike began July 6 and has closed all logging camps. sawmills and plywood plants in B.C.'s coastal area.



Join the Swing to the All-New

SIMONDS "SI-NAMIC" PAPER KNIFE



New Simonds "Si-Namic" Knife finish (50X)...a controlled super-smooth, uniform surface (produced by a patented process) that surpasses all other finishes.



Surface of so-called super-smooth finish knives (50X), produced by other polishing procedures, shows irregular surface conditions left by such processes.

... the Finest of them all!

Simonds new "SI-NAMIC" Paper Knife . . . a premium quality knife at regular price . . .

VIRTUALLY ELIMINATES DRAG — provides mark-free cuts with no glaze because the cutting edge is far keener and stays sharp longer.

MATERIALLY REDUCES DUST — new process finish produces a super-sharp edge that cuts clean and powder-free.

ACTUALLY STAYS SHARP UP TO 100% LONGER — new steel and new finish combine to resist wear as never before thought possible . . . provide up to twice the cutting between grinds . . . insure continued un-matched sharpness grind after grind!

Get delivery NOW from your printing supply house or your nearby Simonds Distributor.

SIMONDS SAW AND STEEL CO. FITCHBURG, MASS.

NEW STEEL: made from a new "mix" that contains more edge-holding alloy, that is more wear resistant and lasts longer. NEW PACKAGING: new design with steel re-

enforced ends prevents splintering and injured fingers . . . insures life-long knife protection.

Factory Branches in Boston, Chicago, Shreveport, La., Sen Francisco and Portland, Ore. Canadian Factory in Montreal, Que.

MONTHLY REPORT - WORLD NEWS

wilderness Bill "TIED UP" . . . until the next session of Congress, according to a report by the National Wildlife Federation. Postponement came as the result of the illness of Sen. Joseph C. O'Mahoney (D., Wyo.).

RESEARCH FACILITIES DOUBLED . . . at Mead Corp., Chillicothe, Ohio, where \$1,400,-000 is being spent on the project. Completion is expected in late 1960. Included: two extensions to the main building (providing 39 additional offices and 20 new laboratories) and an extension to the adjacent pilot plant.

ARKANSAS MILL GOES CLUPAK . . . The Camden, Ark. plant of International Paper Co. has equipped its No. 1 machine with a Clupak extensible paper unit. The machine—the third actually producing Clupak in the U.S.—will produce about 200 tons per day under the trade name Gator Hide.

NEW MILL PROPOSED FOR GEORGIA . . . where Southern Land, Timber & Pulp Corp., a newly organized firm, is considering locating a plant on the Chattahoochee River within 50 miles of Columbus. President John Neely reports that a site will probably be announced within two or three months.

"research, development, planning, quality and service" have been announced by St. Regis Paper Co., in a reorganization of its technical activities. The project is being undertaken "to make more effective use of new technology and to implement continuing programs of diversification and growth." Responsible for the program is Dr. Kenneth A. Arnold, director of research and development.

EXPANSION AT CALCASIEU NEARING END . . .

Late fall is target for completion of a vast modernization program at Calcasieu Paper Co. Inc., Elizabeth, La. Included: new wood-handling facilities; paper machine building; lime recovery plant; woodyard, warehouse and administrative facilities.

SAFETY FIRST AT KVP . . . For the first time in its history KVP Co., Kalamazoo, Mich., has achieved 1,000,000 accident-free man-hours. The new record climaxes a campaign undertaken in 1952 to reduce accident frequency. For the seven-year period, frequency was reduced 82%.

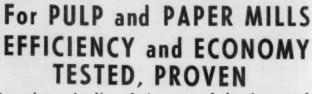
HOPSCOTCHING THE NORTH AMERICAN INDUSTRY

. . . International Paper Co.'s Single
Service div. will build a plant in Framingham, Mass., for the production of
Pure-Pak paper milk containers. . . .

Stone Container Corp., Chicago, Ill.,
has bought the business of Acme Carton
Co., Chicago. . . . Canadian and U.S.
firms are pooling resources to build the
new Fourdrinier machine for the LaTuque,
Que., Canada mill of Canadian International Paper Co. Dominion Engineering
Co. Ltd. and Beloit Iron Works will each
supply about 50%. The unit will have a
176-in. wire, will be 400 ft. long.

MORE ABOUT THE INDUSTRY . . . In its first entry into the manufacture of corrugated paper and corrugated containers, Albemarle Paper Mfg. Co., Richmond, Va., has merged Richmond Container Corp. . . . Taylor Fibre Co. at Betzwood, Pa. has more than tripled the space available for basic research in vulcanized fiber and laminated plastics. . . . Work has begun on Scott Paper Co.'s new corporate administration building adjacent to the Philadelphia International Airport. . . . An entire floor in a new building at 360 Lexington Ave., New York, N.Y., has been leased to TAPPI. . . . Construction of an L-shaped warehouse and plant that will connect the Valdosta, Ga., paper mill and the multiwall bag plant of Owens-Illinois Glass Co. was to begin in August. . . . Expansion at Stone Container Corp.'s Western Paper Box div. in Detroit, Mich., has more than doubled the plant's capacity for corrugated containers. . . Purchase of 24,200 acres of timberlands and timber rights in the upper peninsula of Michigan, from Atlas Plywood Corp. has been announced by the Goodman Lumber div. of Calumet & Hecla Inc.

jamesbury "Double-Seal" Ball Valves



Jamesbury, leading designers and developers of the "Double-Seal" ball valve principle, now offer a series of valves for the pulp and paper industry. Exhaustive tests in mill runs have shown the effectiveness of these valves. An example is the Jamesbury Valve used in digester blow service. These valves are ideally designed to handle the after-cooking discharge.

Compare these unique features for your valve applications:

ZERO LEAKAGE — "Double-Seal" means seats and seals on *both sides* of the ball, assuring tightest possible closure on both sides of the valve.

HIGH FLOW CAPACITY — with minimum friction loss. Unique valve construction assures utilization of full pipeline capacity.

MINIMUM MAINTENANCE — rugged construction withstands pressure and shock. Needs no lubrication. Compact and lightweight. The self-wiping action of the Ball during rotation prevents residual build-up on sealing surfaces.

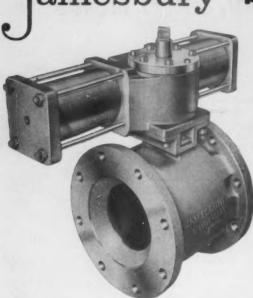
REMOTE CONTROLLED — operators available as integral, factory-tested unit, for pneumatic, hydraulic or electric operation.





WIDE RANGE OF MATERIALS — 303 and 316 Stainless Steel, Carbon Steel, Bronze, Aluminum and PVC (Polyvinyl chloride). TEFLON seats and seals — or, if desired, Neoprene or Buna-N. Flanged ALLOY 20, Ductile Iron and Monel valves are available on application.

SIZES — Jamesbury produces Screwed End valves in sizes from 1/4" to 3", Flanged valves from 1/2" to 8" as standard items. 150# and 300# series. 10" valves will be available during the last quarter of 1959. Please request information from Jamesbury Corp. on larger sizes.



Investigate the Jamesbury Ball Valve concept for these pulp and paper mill applications:

- . DIGESTER BLOW VALVES
- WHITE, BLACK AND GREEN LIQUOR LINES
- . WATER LINES
- GAS OFF VALVES
- AIR LINES
- . ACID LINES
- . SAMPLING VALVES
- INSTRUMENT LINES
- BLEACH LIQUOR

Jamesbury "Double-Seal" Ball Valves will help you to:

Prevent Loss of Cooking Liquor Reduce Blowing Time Increase Number of Cooks Assure Trouble Free Processing Increase Pulp Production Reduce Down Time

Ask for the new brochure "The Jamesbury Ball Valve In Pulp and Paper Mills." Distributors in Principal Cities.



amesbury CORP.

148 NEW STREET, WORCESTER, MASS.

WORLD PULP & PAPER

Technical News

Semi-Chemical Cold Soda

CERAGIOLI, GIORGIO. Cellulosa e carta (Rome) 10, no. 1: 5-19 (Jan., 1959). [In Italian] Abstr. Bull. I.P.C. 29: 1747-8.

To evaluate the effect of some process variables on the properties of cold soda pulps, poplarwood chips were treated for 5 hr. at 20° C. with caustic solutions containing 10, 25, 40, 55, and 70 g sodium hydroxide/ liter at solids: liquid ratios of 1:7 and 1:10. The effect of reaction time was investigated on poplarwood chips of very small size (the size of match tips), i.e., under conditions such that their impregnation was practically terminated within 15 min. In addition, a series of experiments was carried out, in which the chips were treated for 0.5-2 hr. with liquors containing 10, 30, and 50 g./liter of alkali at a temperature of 90°. Prolonged times of reaction between wood and alkali lowered the yield and brightness of pulp, but increased its mechanical strength. Thus, by prolonging the reaction time from 0.5 to 22 hr. (at a degree of beating of 60° S.-R. a solids : liquid ratio of 1:10, and an alkali concentration of 30 g./liter), the breaking length was increased from 3300 to 5400 m., the tearing strength from 45.5 to 57.5 g., and the bursting strength from 1.55 to 2.55 kg./sq. cm. Similar effects were obtained by increasing concentration of alkali and/ or decreasing the solids : liquid ratio until the alkali concentration reached 4-5%. At higher concentrations, the mechanical strength properties were lowered. As compared with the treatment at 90°, the cold soda process gave yields higher by 7-9% and pulps of lower density and better bleachability. Among the constituents of wood, hemicellulose were the most affected by either the cold or hot soda treatment. About 5-8% lignin was removed under mild pulping conditions, and 12-17% under more drastic treatment of chips.

Transparency and Reflectance

SCHMIDT, GERHARD K. Das Papier 13, no. 7/8: 141-9 (April, 1959). [In German] Abstr. Bull. I.P.C. 29: 1801.

In determining the transparencies, opacities, and brightness values of 12 different papers, a new measuring technique was developed in which an "absolutely black" background was

Presented with permission of The Institute of Paper Chemistry, under supervision of Curtis L. Brown, editor of IPC Bulletin. Photostats or translations of original reports available at reasonable cost by writing Eugene Bunker, librarian, Institute of Paper Chemistry, PO Box 498, Appleton, Wis., U.S.A.

used, thereby avoiding the errors accruing from differences in the conven-"white" backgrounds. Data obtained by the new method are compared with those found by the Kubelka-Munk technique. The equations deduced from the experimental data-by extending the mathematical approach from a single sheet of paper to a pile of similar sheets and taking intermediate reflectances into account are simpler than those of the Kubelka-Munk theory but lead to results which are ultimately similar to (and often practically identical with) those obtained by the Kubelka-Munk method. The possible interdependence of optical paper properties and sheet thickness are discussed, but correlations are indicated only briefly.

Bleaching by Oxidation

Monzie, P., Monzie, D., and Raoux, H. Assoc. tech. ind. papetière, Bull. no. 1: 32-45 (1959). [In French] Abstr. Bull. I.P.C. 29: 1754-5.

In a study of the effect of oxidative degradation on the color reversion and D.P. of bleached pulp, maritime pine kraft pulps were subjected to increasingly severe hypochlorite bleaching conditions and to stabilizing treatments with sodium chlorite (after hypochlorite bleaching under mild conditions) with or without subsequent borohydrite reduction so as to obtain samples of different degrees of degradation and stability (measured by color reversion upon accelerated aging at 120°C. for 14 hr.). The following conclusions could be drawn from the data obtained: The yellowing of kraft pulps is related directly to their residual hemicellulose content. The decrease of stability caused by bleaching is determined not only by the degree of oxidation, but also by the pulp composition. Thus, at equal degrees of oxidation, cellulose has a stronger tendency to color reversion than hemicellulose. The depolymerization rate of cellulose increases with decreasing hemicellulose content, indicating a protective action of the latter against degradation.

Peroxide Bleaching—France

MARCOVITCH, S. Papier, carton et cellulose 7, no. 6: 124-8; summaries: 172-4 (Jan.-Feb., 1959). [In French] Abstr. Bull. I.P.C. 29: 1754.

Two semi-chemical sulfite pulps, obtained by a batch process from a mixture of beech-, birch-, aspen-, and lindenwood, and by a continuous process from a mixture of beech-, birch-, and hornbeamwood, respectively, were bleached with hydrogen peroxide by a one- and a two-step procedure. The average yield of the pulps was 80% and their initial brightness 45-55 photo-volt units. Pulps having a brightness of 60-64 photovolt units were obtained by the onestep procedure, consisting of treatment with 2-3% hydrogen peroxide at 50°C. for 4 hr. at a consistency of 10%, or at room temperature for several days at a consistency of 25%. Higher brightness (70-73 photovolt units) was obtained by using the two-step procedure, i.e., by pretreating pulp with hypochlorite or with acid (sulfuric, oxalie, or hydrochlorie) at a consistency of 4%, and then bleaching with 2-4% peroxide at 50° and a consistency of 10%. The yield and the mechanical properties of the pulps (breaking length and bursting strength) were unaffected by peroxide bleaching.

Area Stability Measure

LUTZ, ALFRED W. Wochbl. Papier-fabrik, 87, no. 9: 362-3 (May 15, 1959). [In German] Abstr. Bull. I.P.C. 29: 1807.

By marking the edges of the paper web at the start of the dryer section, e.g., by means of grooving wheels, and remeasuring the roll width on the winder, the amount of cross-directional shrinkage can be determined. This amount, multiplied by a factor of 0.6, gives the extent of cross-directional wet stretch to be expected. The author has shown previously that the greatest portion of the differences between cross-machine and machinedirectional strength and elongation can be eliminated by exerting a certain definite tension in the cross-machine direction on the paper web during drying. The same measure can probably minimize the differential anisotropic) wet stretch of paper and thus save considerable time and expense in eliminating the need for paper conditioning prior to printing.

Which these products and services use from



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Well, perhaps there's a little more to your gaining use of Becco patents than just mailing your dollar in, but not much more. And certainly, no more money. The \$1.00 really does cover it.

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If one of our patents can help you, we'll be glad to license the rights to you perpetually, for just one dollar. You get a nice certificate, incidentally, to cover the legalities, but more important you also get free our complete engineering help in setting up your process, handling the material, maintenance, etc., etc.

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BECCO CHEMICAL DIVISION, FMC Station B, Buffalo, New York

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Years of experience in paper and pulp processing have produced a library of technical information which is available in individual bulletins, free on request. Use the coupon below to let us know which you'd like to receive.

- No. 31 Groundwood Bleaching Variables - A Statistical Approach.
- No. 32 H₂O₂ Bleaching of Chemicals and Mechanical Pulps.
- No. 47 Peroxide Bleaching of Pulps.
- No. 48 High-Density Pulp Bleaching.
- No. 64 Development Studies on Last-Stage H₂O₂ Bleaching of Alkaline Pulps.
- No. 65 Peroxide Bleaching of Southern Pulps.
- No. 66 Becco Laboratory Procedures for Pulp Bleaching. 1955 Ed.
- No. 91 Peroxide Bleaching of Chemi-Mechanical Hardwood Pulps.
- No. 92 Peroxide Bleaching of Chemical Pulps.

New Cold Caustic Bleach Process

Looking for a way to use greater amounts of low-cost, more plentiful pulp-without capital investment for bleach equipment? Then let a Becco Sales Engineer show you our new technique* which allows you to bleach in the same equipment regularly used for the manufacture of cold caustic pulp.

In this new process, peroxide bleach liquor is added at the Bauer Refiner, and bleaching occurs during the refining operation. Bleach response depends on refiner densities.

Up to 20 points brightness increase has been obtained in commercial operations to date. and with no additional steam costs, no holding time, and no excessive chemical costs.

Becco can assist you immediately in setting up a production run and evaluating results. First step: use the coupon to let us know you're interested.

*--Patent Pending



How BRIGHT Is BRIGHT?

That's a hard question to answer. It depends on how the pulp is treated.

Trouble is, paper can show an 86 level at the layboy, but by the time the paper is delivered, this has dropped to 82 or lower. With conventional bleaching methods, that is.

Many chemical pulp producers have found the answer to this problem in Becco's **Dryer Steep Bleaching Process** (patented, but licensed perpetually for one buck). Applied by means of spray pipes across the pulp sheet ahead of the dryers, Becco Hydrogen Peroxide increases brightness permanence and bleaches in transit. Often, in fact, an 86 layboy level improves to 88 by delivery time.

This is just one example. Becco has a vast amount of technical knowledge compiled from 31 years of experience with all types of pulp. If you'd like help with your pulp, free of any obligation, let us know with the coupon below.

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BECCO CHEMICAL DIVISION, FMC Station B, Buffalo, New York

Dept. PP-G Gentlemen: Please send me a copy of each of the following bulletins:

NAME. FIRM ADDRESS.

ZONE STATE

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BECCO CHEMICAL DIVISION, FMC Station B, Buffalo, New York

Dept. PP-H Please have a Sales Engineer give me more information on Becco's Cold Caustic Bleach Process.

FIRM ADDRESS.

STATE ZONE __

BECCO CHEMICAL DIVISION, FMC Station B, Buffale, New York

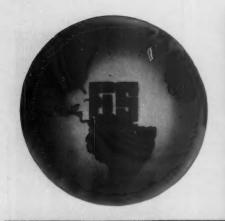
Dept. PP-C

Gentlemen:

We would like help with our pulp. Please have a Becco Sales Engineer call.

NAME FIRM

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For Reburning Lime Sludge

We are specialists in the design and manufacture of rotary kilns, coolers and auxiliary equipment for burning lime, lime sludge and for many other purposes.

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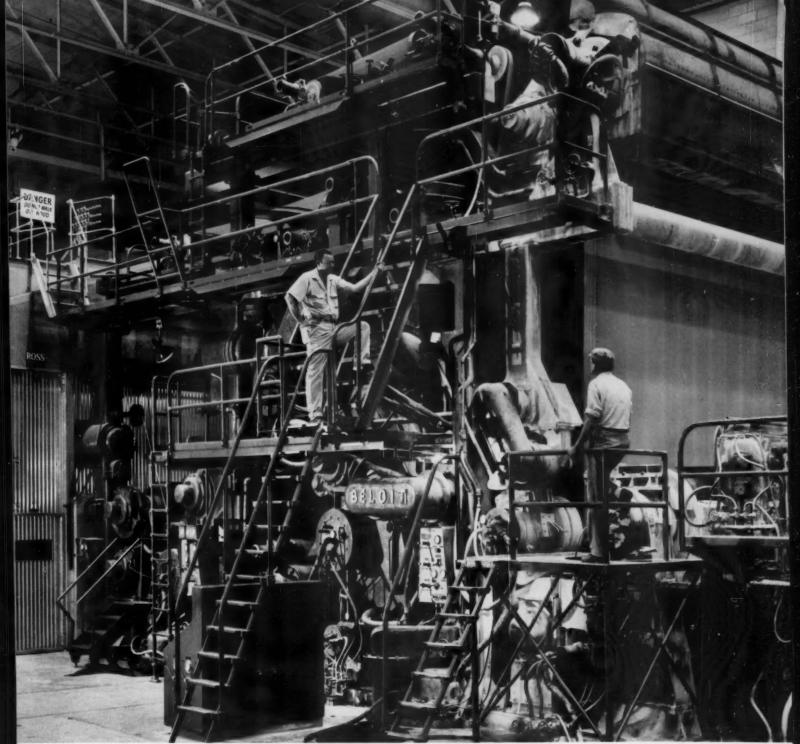
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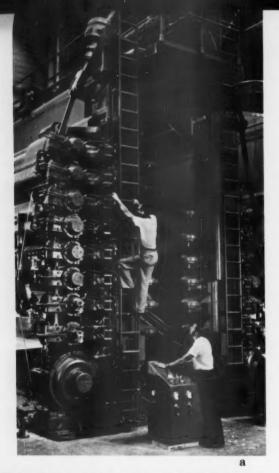
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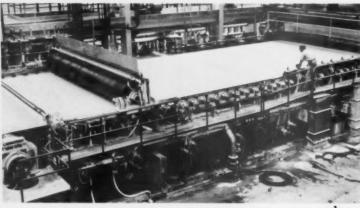
Twinver Press # 20 Machine, Carolina Division, Canton, North Carolina

The Champion Paper and Fibre Company



Champion's new number 20 machine at Canton, North Carolina, "sets the pace in fine papermaking." This 246" fine papers machine is the largest, most productive machine of its type in the world. Its successful startup marks another milestone in Champion's continuing expansion of productive capacity. For further details, please turn page.







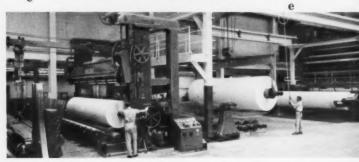


... some features of Champion's new Beloit 246" fine papers machine pictured on the preceding page

Number 20 machine adds 90,000 tons of annual production to The Champion Paper and Fibre Company's fine papers line. The machine is designed to operate in the 2,000 fpm range. The surrounding photos show some features of the machine.

(a) Twin open side calender stacks with nip relief arrangement; (b) removable Fourdrinier; (c) finished roll conveyor and roll breaker arrangement; (d) high-speed pneumatic reel; (e) Beloit model "L" winder, oscillating unwind stand, roll and shaft handling equipment; (f) Beloit differential drive unit at wire turning roll position.







This insert is lishographed on Champion's Wedgwood® Coated Offset.



Alpha Protein...

to get all that the camera saw...on paper

All the alluring beauty first captured by the camera is faithfully recorded here...by the unexcelled quality of Alpha Protein-processed paper. Fidelity of reproduction is reflected in each strand of hair, each subtle flesh tone.

Every day, more coating mill operators are specifying Alpha Protein—the largest-selling adhesive for high solids coated offset paper. Reason: they want the controlled product quality, faster machine speeds, higher coat weights, reduced costs—and better-satisfied customers!

Alpha Protein extra high solids coatings permit faster machine speeds with production upped 15 percent in many cases. Investigate the application of Alpha Protein in your coating operation—it can pay you well!

CENTRAL SOYA COMPANY, INC.

Chemurgy Division

1825 N. Laramie Avenue

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This advertisement reproduced on Alpha Protein-processed paper

West End earns its position as a responsible supplier of salt cake

In 1955, with its first offering of salt cake, West End assured the Industry of an ability to meet long-term commitments based on vast natural raw material supply, ample production and storage capacity, rapid and efficient transport facilities. By unconditional fulfilment of every commitment for over 4 years, West End has conclusively demonstrated its complete reliability as a major source of highest quality salt cake. Every normal and unanticipated requirement has been met with equal ease and dispatch.



Today, with even larger facilities and a determination to maintain the reputation it has earned, West End is solidly qualified to handle any size requirement in a wide marketing area where it is a logical source of salt cake for kraft paper manufacturers. You are invited to consult with us on the over-all economics of using West End Salt Cake.



WEST END CHEMICAL COMPANY

DIVISION OF STAUFFER CHEMICAL COMPANY

EXECUTIVE OFFICES: 1956 WEBSTER, OAKLAND 12, CALIF. • PLANT: WESTEND, CALIF.

Now they're PLUS-RATED Output Output

That's right!! All V-Belts with the Green Seal are now "PLUS-RATED."

"PLUS-RATED" means the horsepower carrying capacities of previously standard E-C Cord V-Belts, super-rated Hy-T V-Belts and top-rated Compass-V-Steel Belts have <u>all</u> been substantially increased to give you the maximum in rated horsepower hours per dollar.

Example: E-C CORD V-Belts are now rated at a 40% higher horsepower capacity than ever before.

And Remember These Important Facts:

- 1. The "PLUS" ratings are offered in addition to <u>dimensional stability</u> and the many other plus properties of V-Belts with the Green Seal at no extra cost.
- 2. The "PLUS" ratings have been established only after a careful study of the <u>actual performance</u> of thousands of sets of Green Seal Belts.

The full story on why and how <u>all V-Belts</u> with the Green Seal have been "PLUS-RATED" goes back to their introduction in May 1957, and is too long to detail here. See your Goodyear Dealer for all the <u>performance-proved</u> facts and figures. Or write Goodyear, Industrial Products Division, Lincoln 2, Nebraska, or Akron 16, Ohio.

"PLUS-RATED" V-BELTS
WITH THE GREEN SEAL BY



THE GREATEST NAME IN RUBBER

Green Seal, E-C Cord, Hy-T, Compass -T. M.'s The Goodyear Tire & Rubber Company, Akron, Ohio

FOR CORROSION RESISTANT VALVES

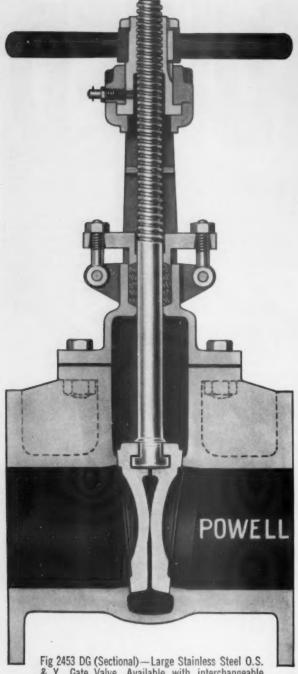


Fig 2453 DG (Sectional)—Large Stainless Steel O.S. & Y., Gate Valve. Available with interchangeable solid or split wedges. Wedges are fully guided throughout their travel.



Powell offers valves available in the largest selection of metals and alloys to handle practically every corrosive fluid—valves that can be depended upon to control flow in most severe services—because of

Powell advanced design and engineering.

Solid and double wedge discs of gate valves are interchangeable. They are precision machined and fitted, and are accurately guided throughout their entire travel. This prevents drag of the disc over the seat faces, eliminating wear of seating surfaces and stops undue vibrational noises.

O.S. & Y. Valves—Stems are threaded and guided through a bronze bushing in upper yoke. (Bushings made of other alloys can be supplied on special order.) A compression lubricant fitting in upper yoke is provided to lubricate the stem and bushing threads and to reduce wear. A convenient shelf is cast on the inner sides of yoke arms for suspending the gland when renewing the packing.

All 150# valves are regularly packed with Teflon Packing. Globe, Angle and "Y" valves are available with metal or Teflon discs.

Globe, Angle, Gate and "Y" valves are back seated for repacking under pressure when fully open.

Consult your local Powell distributor or write directly to us.

THE WM. POWELL COMPANY • Dependable Valves Since 1846 • Cincinnati 22, Ohio

TANK CAR



Loading Tank Cars at one of our mines

... an important phase of TGS Service

This is a service of interest to the rapidly increasing number of companies preferring to receive their sulphur deliveries in molten form so that they can transfer directly from cars into consumption. We are equipped now to deliver molten sulphur by tank car from all mines and recovery plants to any place in the country. Detailed instruction sheets and drawings are available on request for those in the planning stage or who do not have adequate or proper facilities for handling and storing molten sulphur.



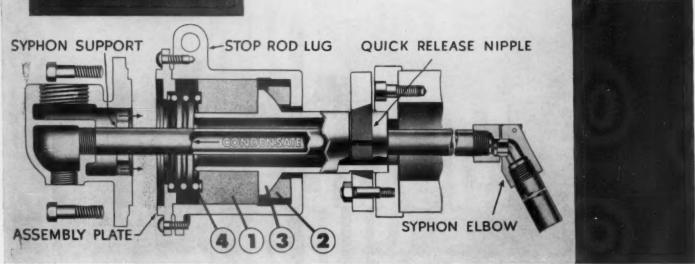
TEXAS GULF SULPHUR COMPANY

75 East 45th St., New York 17, N. Y. / 811 Rusk Ave., Houston 2, Texas

Sulphur Producing Units: Newgulf, Texas • Spindletop Dome, Texas • Moss Bluff, Texas • Fannett, Texas • Worland, Wyoming •



for Paper Machines with STATIONARY Syphon Pipes



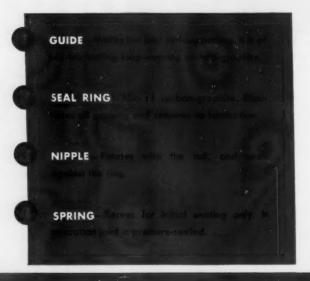
Only 4 Internal Parts

This simplicity of construction means fewer breeding places for trouble. The SUPER construction—which features rock-hard "Green Streak" seal rings which features rock-hard "Green Streak" seal rings and special Ni-Chrome plating—reduces friction and wear importantly. The "Quick Release" Nipple makes mounting, or inspection, a one-man one-wrench operation. The Syphon Elbow ends all the troubles of the unwieldy curved syphon pipes—hinges to pass right through the joint.

Like all Type S Johnson Joints, the Type SBP is completely self-supporting—needs no external supports of any kind. All in all it is a good example of why Johnson Joints are first choice in the paper industry. Type S Johnson Joints are available in sizes from ¼" through 4", for both through-flow and stationary syphon pipe applications.

and stationary syphon pipe applications.

FREE TRIAL—We'll gladly furnish a pair of Johnson Joints for 90-day trial in your own mill. Write for information.





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Rotary Pressure Joints . Direct Operated Salenaid Valves

and for Paper Machines with <u>ROTATING</u> Syphon Pipes

Johnson __ Joint

> , with Quick Release Nipple

Best Design Yet

Rotating syphon pipe does not fotate in the packing; thrust collar, nipple, packing gland and syphon pipe all rotate together as a unit. Joint needs no lubrication or adjustment. Time-proved construction has only a few simple parts—a design which thwarts trouble, permits easier field servicing. Assembly plate provides ready access to syphon pipe. Type L-N Johnson Joints are available in sizes from ½" through 8".

Floating Action

Simple rod supports carry all the weight of the body and connections—permit the rotating assembly to "float" freely inside. Can be adapted for machines with open or enclosed gearing.

Easy On . . . and Off

Johnson "Quick Release" Nipple utilizes powerful wedging action to lock nipple securely to journal. You install the joint or remove it for inspection—with just an end wrench; no danger of damaging nipple with heavy pipe wrenches.

Super Construction . . . and Stamina

Teams "Green Streak" seal rings, of much harder and denser structure, with Ni-Chrome plating on wearing surfaces. Results: Considerable reduction in friction load and much longer service life.

Write for Literature

Bulletin S—Johnson Joints for use with both through-flow and stationary syphon pipe applications.

Bulletin N-Johnson Joints for use with rotat



Lodding Press Doctors ride with the roll

The Mechanically oscillating top press roll doctor pictured here was custom made for the second press on No. 4 machine at the Sorg Paper Company. It was planed to conform exactly to the crown in the roll. Afterwards, it was optically checked, by means of a special alignment telescope, to make certain it came within critical tolerance specifications.

Mounted on the press arms, this Lodding Press Doctor always rides with the roll — in perfect balance, perfectly aligned with the axis, no matter what position the roll takes. Steady, uniform pressure is exerted by the blade over its entire length with no danger of damaging the roll covering.

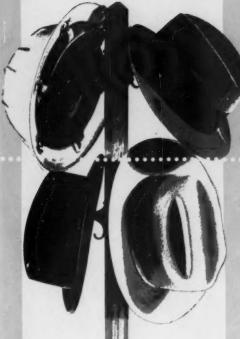
Thousands of custom-engineered Lodding Doctors, like this one at Sorg, are performing dependably on all kinds of machine rolls in mills everywhere. That's because each doctor was precision made by specialists for a specific application.

So whether you need doctors for press rolls or any others, from Fourdrinier to reel, you get guaranteed satisfaction in Lodding Doctors.

Get in touch with Lodding or your nearest sales representative for complete information.



We welcome your inspection of our new plant located in Worcester's Auburn Industrial Park.



"We're wearin' some new hats!"

Since 1954, Eastex has produced the finest quality market pulp and Fourdrinier paperboard for the converting industries.

Now, we're wearin' several new hats!

Since January, Eastex has been producing converting cylinder board grades on its newly acquired 110" machine.

In July, laminations of foil-to-board, greaseproof-toboard and board-to-board began rolling off our new Inta-Roto combination laminator.

And now — many grades of board, coated one or two sides to provide superior printing results, are available from our off-machine coating department.

Versatile? You bet! And, you'll notice that we keep the steel helmet handy, because we're ready to expand again at the drop of a hat to meet the growing needs of a growing industry.

Let us tell you about our new grades.



EAST TEXAS Pulp and Paper Company

Coneral Sales Office
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Telephone, Fuergreen 5.371

Eastern Sales Office 122 East 42nd St. New York City, N. Y. Telephone—OXford 7-2980

Midwest Sales Office 1003 Builders Bidg. Chicago, III. Telephone—Råndolph 6-1068 Western Sales Office 1151 South Broadway, Los Angeles, Calif. Telephone... Bichmond 7.5126 Western Sales Office 210 California Street, San Francisco, Calif. Telephone—Sutter 1-6123





The Labors of Hercules

Better Papermaking Chemicals Better Technical Assistance

Mythology—Hercules was a mighty hero, whose feats of strength are told in Greek mythology. One of the labors assigned to him by the Gods was the capture of the fearsome three-headed Cerberus, a vicious canine that guarded Pluto's kingdom in the Lower World. With bare hands Hercules choked the beast and returned to earth with the animal in chains.

Technology—Hercules has been known for a half century as an unfailing source of supply for quality papermaking chemicals; yet must labor anew each working day. For reputations are earned, not from history, but on the basis of today's performance. Typical of these modern labors, in addition to the products themselves, are these: continually maintained programs of research, development, and application at four separate laboratory locations; the unequalled technical services of a staff of over fifty field specialists in seven district offices. Why not let Hercules labor on your behalf?



Paper Makers Chemical Department

HERCULES POWDER COMPANY

Wilmington 99, Delaware



Forester shoots cutting from a superior tree for use in grafting



Buckeye always aims high

Improvement is our goal...in forest, laboratory and mill

Today's best is not good enough for tomorrow at Buckeye. As a market pulp producer, our future is based on continued leadership in pulp improvement.

Throughout the Buckeye organization you see men dedicated to the development of pulps for the years to come. They are the research foresters seeking faster growing trees with special pulp characteristics. They are the chemists engaged in basic research for product improvement. They are the engineers setting up new and improved manufacturing processes.

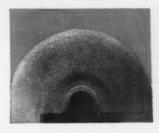
For a dependable source of prime kraft, today and tomorrow, look to Buckeye... producer of outstanding pulps for the paper industry.

BUCKEYE
CELLULOSE CORPORATION
Memphis 8, Tenn.

Wood pulp plant at Foley, Florida Cotton linters plant at Memphis

BUCKEYE

Bleached and Semi-Bleached Kraft from Southern Pine



PULP

THE DE LA ROZA BAGASSE PROCESS IS THE ONLY ONE THAT

Uses 100% bagasse fibre, without the addition of wood pulp or any other kind of fibre than bagasse.¹

Use the pith fibres as well as the long fibres of the bagasse.2

"Is the only process considered satisfactory in all significant respects for newspaper use."*

As "THE PIONEERS OF BAGASSE PROCESSING"3

we have developed the only process that will produce 100% bagasse pulps suitable for newsprint, book, bond, and other papers and cellulose products, and as the designers, builders and initial operators of the world's first 100% bagasse newsprint mill, we have the only commercial experience in the field.

THERE IS NO SUBSTITUTE FOR EXPERIENCE



⁴Mill of Técnica Cubana, S.A., 100 tons daily ultimate capacity, designed, constructed and initially operated by de la Roza Corporation's WORLD'S LEADING BAGASSE ENGINEERS.

¹Newsprint paper made by us at the Mill of Técnica Cubana, in Cuba, contains 100% Bagasse Cellulose, Pith Cells as well as Long Cells. Does not mix in wood pulp or any other than Bagasse Pulp.

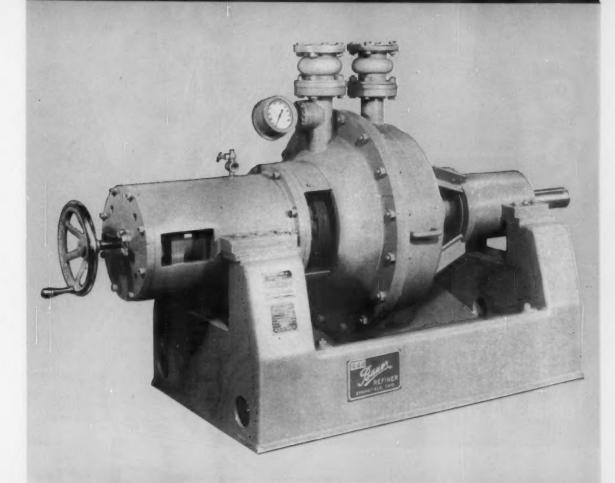
² Actually Purified Bagasse Pith holds more filler, closes up the sheet, improves formation, and lowers COSTS.

³"Paper for Printing" Today and Tomorrow, by the Intelligence Unit of The Economist, London. Presented jointly by UNESCO and FAO, says: "A process recently invented by de la Roza, THE PIONEER IN BAGASSE PROCESSING, seems to be capable of making newsprint approaching standard quality, of good appearance, at competitive price, from 100% chemically pulped Bagasse."

★"Study of Newsprint Expansion," a progress report by the United States Department of Commerce to the Committee of Judiciary, House of Representatives (U.S. Printing Office 1952)

DE LA ROZA
COPORATION
441 Lexington Ave., New York, N.Y.

A NEW 24" BAUER PUMP-THROUGH REFINER



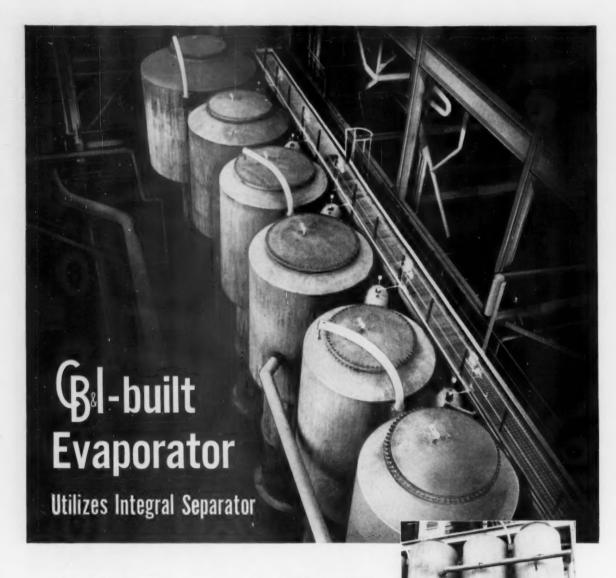
FOR SMALL TO MEDIUM TONNAGE MILLS

A high capacity, slow speed, single revolving disc mill designed specifically to replace jordans.

- Unequalled for stock preparation
- Pulp capacity Up to 50 T/D
- Degree of refining accurately and easily controlled
- · Automatic or remote control optional
- . Low operating and maintenance costs
- · Wide range of uses

Write for descriptive bulletin.

THE BAUER BROS. CO., 1706 Sheridan Ave., Springfield, Ohio



This six-body sextuple effect evaporator was built by CB&I for Container Corporation of America at Brewton, Alabama. It utilizes CB&I's patented integral separator, eliminating all external piping and valves . . . minimizes pressure drop and temperature loss across the system.

Tube sheets in all vessels and lower vapor body sections of No. 1 and 2 effects are fabricated of corrosion-resistant stainless steel Hortonclad[®], assuring longer performance life.

A bulletin describing CB&I's coordinated services and equipment for the pulp and paper industry is available. Write for it today.

CHICAGO BRIDGE & IRON COMPANY



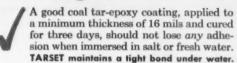
332 SOUTH MICHIGAN AVENUE CHICAGO 4, ILLINOIS

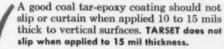
OFFICES AND SUBSIDIARIES IN PRINCIPAL CITIES THROUGHOUT THE WORLD

Top view: CB&l-built evaporator at Container Corporation of America plant, Brewton, Alabama. Easy accessibility for maintenance keynotes entire installation.

Directly above: CB&I patented integral separator eliminates external piping and valves...minimizes pressure drop and temperature loss.







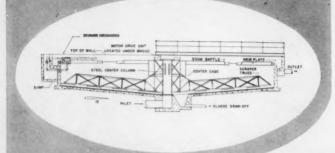
A good coal tar-epoxy coating should maintain its full effectiveness in storage. Tarset has excellent shelf life.

A good coal tar-epoxy coating should be known by its performance. TARSET has an unequalled five-year record of outstanding performance. No other coal tar-epoxy resin coating on the market duplicates the exclusive Pitt Chem Tarset formula. It has not been made available to anyone else! Only Tarset is backed by a five year record of outstanding performance in the field. Call your Industrial Distributor for more information . . . today! See the "Yellow Pages."



PROTECTIVE COATINGS . COAL CHEMICALS . PLASTICIZERS . ACTIVATED CARBON . COKE . CEMENT . PIG IRON . FERROMANGANESE

Choose the
CORRECT WASTE
TREATING EQUIPMENT
for
SUSPENDED SOLIDS
REMOVAL



If you require only settleable solids removal you'll do well to consider an INFILCO clarifier for simple gravity settling. Correct hydraulic and mechanical design insures satisfactory performance and minimum maintenance expense.

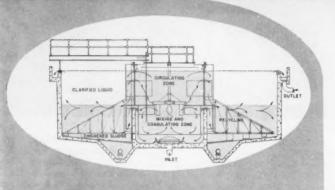
The WS Clarifier mechanism with a central drive shaft supported from stationary beams spanning the tank is available for small and medium diameter units. The BF mechanism with the scraper assembly suspended from a turn-table carried by a central column is preferred for larger size clarifiers.

Surface skimmers are available for floatable solids.

For complete information, send for

Bulletin W-800-D

Minimize your investment by selecting the correct equipment to accomplish the results you want





INFILCO Incorporated

General offices . Tucson, Arizona
Field offices throughout the United States and other countries

If pollution control regulations or your plans for water recovery require colloidal as well as settleable solids removal by chemical coagulation, specify the CYCLATOR® clarifier to obtain unique design features which give you maximum clarification.

Untreated waste and chemicals are mixed in the presence of previously precipitated solids which are recirculated from the settling zone. This promotes formation of large dense floc particles which settle rapidly and produce maximum clarification.

Bottom scrapers thicken settled sludge and move it to the discharge sump. Surface skimmers are available for floatable solids.

For more complete information, write for

Bulletin 850-C



ASBESTOS Dryer Felts

incorporate our exclusive

* "3-DECKER" STRUCTURE

- Dacron-Nylon Working Face
- Syn-Reinforced Asbestos Center
- Syn-Reinforced Cotton Back

(Approx. 25% Synthetic Content)

They insure excellent drying, combined with unusually high resistance to thermal, chemical and mechanical degradation.

Types 3175-C (SRA) and 3480-C (SRA) supplied in all widths either open-ended or with Clipper Seam.

Type 3980-C (SRA) supplied endless with hand-spliced seam.

*World Patents Granted and Pending

Morey Paper Mill Supply Company

Sole U.S. Agents for

SCAPA DRYERS, INC.

NAYLOR PIPE CAN FIT INTO YOUR PIPING LAYOUT

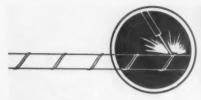
There are three areas in which NAYLOR can help you on your piping layouts—with lightweight Spiralweld pipe, standard fittings and special fabrications.

- NAYLOR pipe comes in sizes from 4" to 30" in diameter and in wall thickness from 14 to 8 gauge. Standard lengths of 20 and 40 feet, or furnished cut to exact length specified.
- Standard fittings for lightweight pipe are carried in stock in carbon steel with 10-gauge wall thickness. Also available up to ¾ " thickness in steel, alloys and stainless steel.
- Special fittings fabricated to exact specifications in all materials in a range from 3" to 44" in diameter and wall thickness up to 3%".

NAYLOR engineers will be glad to work with you in meeting production schedules to fit your requirements.

Write for Bulletin No. 59 and send specifications for quotation.

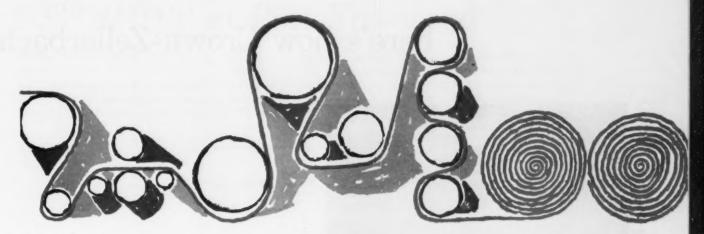




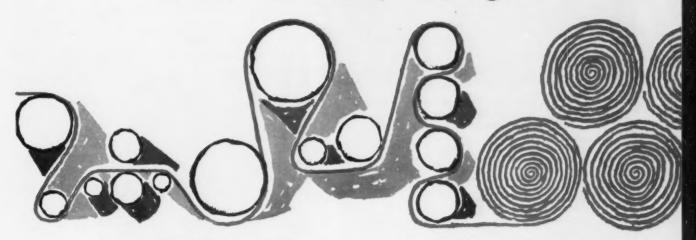
NAYLOR PIPE Company

1271 East 92nd Street, Chicago 19, Illinois
Eastern U. S. and Foreign Sales Office: 60 East 42nd Street, New York 17, N. Y.

plan now to POWER-UP FOR PROFIT ELECTRICALLY



Crown-Zellerbach did at Port Townsend, Washington



increased capacity . . . reduced unit costs

When Crown-Zellerbach Powered-Up the Number 2 paper machine at its Port Townsend plant, a modernized electric sectional drive helped increase operating speed, widen the speed range and provide greater availability. Results . . . increased capacity, reduced unit costs.

You will need more capacity to meet the 40% increase in demand for your products by 1965. Be sure that your electrical equipment will produce profits as well as output. See how Westinghouse helped Crown-Zellerbach to Power-Up the Number 2 paper machine at its Port Townsend plant.

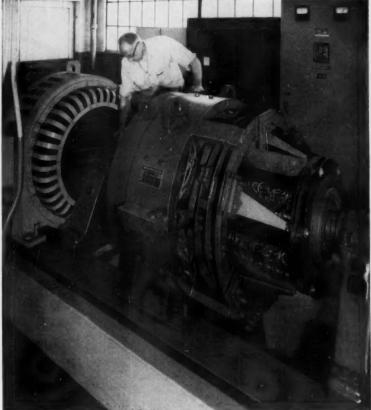
YOU CAN BE SURE ... IF IT'S Westinghouse

here's how Crown-Zellerbach



Wet end view of modernized Number 2 paper machine in Crown-Zellerbach plant, Port Townsend, Washington.



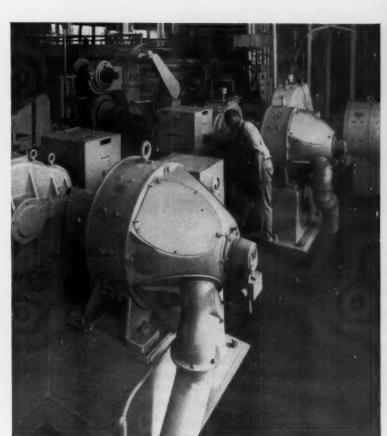


This 3000-amp, 75-volt booster generator was added to increase operating voltage and thus permit higher speeds. SLIPSYN® high-voltage synchronous motor control starter for the driving motor is shown in background.

POWERED-UP at Port Townsend

Modernization of the Number 2 paper machine at Crown-Zellerbach's Port Townsend, Washington, plant increased rated top speed from 1050 ft/min to 1750 ft/min. Also, the speed range was widened from 300-1050 ft/min to 480-1750 ft/min. The increased operating speed and range flexibility, plus the greater availability provided by static Magamp control, all contributed to a reduced cost per ton. All this was accomplished at minimum cost by building around the existing magnetic control.

YOU CAN BE SURE ... IF IT'S Westinghouse

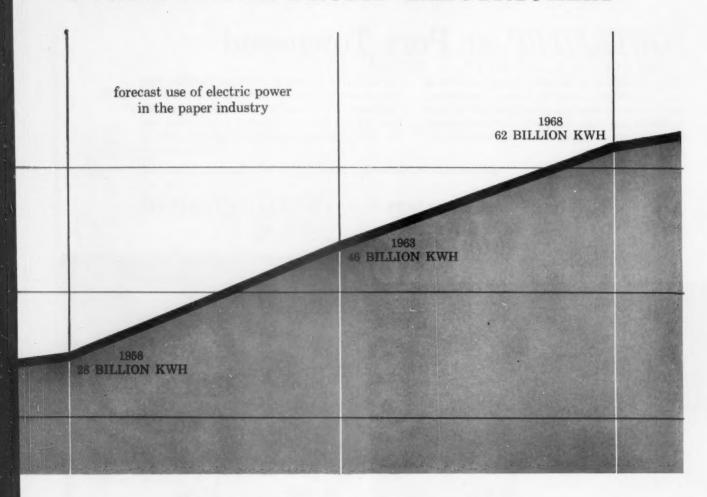


These 100- and 125-hp press motors are integrally mounted with the Westinghouse reducers to conserve space and permit accessibility. These unitized sections were installed to meet the increased power requirements. Drive units on the press section and couch motor are shown in the background.



Lead electrician checks Magamp, a static control-type regulator. The use of static components in this control system results in infinite life and minimum maintenance. Greater machine availability and increased production are assured. Magamp panels were installed in the existing magnetic control board.

here's why you should plan now to POWER-UP FOR PROFIT ELECTRICALLY



To stay competitive, you will be investing in a tremendous increase in electrically powered processing machinery. Be sure it is engineered to produce profits.

Power-Up is a Westinghouse program to help you increase profits through greater productivity. In your plant it may be higher capacity machinery or an engineered control system to provide more uniform production. Whatever the need, maximum use of low-cost kilowatthours can help you earn satisfactory profits.

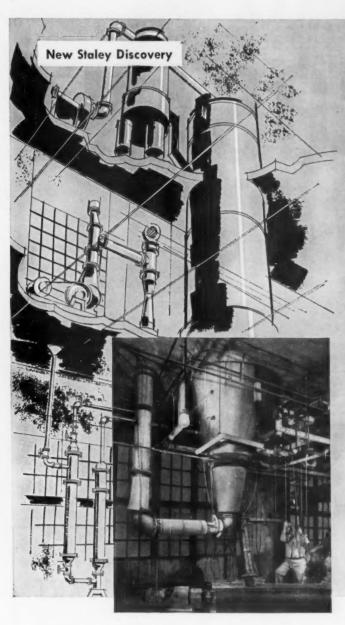
You will need more capacity to meet the 40%

increase in demand for your products by 1965. Be sure—like Crown-Zellerbach—that your electrical equipment is engineered to produce profits as well as output. Call your Westinghouse representative or your utility power sales engineer. They can tell you the electrical steps you can take now to start a Power-Up program in your plant.

J-96136-4

YOU CAN BE SURE ... IF IT'S Westinghouse

WATCH "WESTINGHOUSE LUCILLE BALL-DESI ARNAZ SHOWS" CBS TV FRIDAYS



Giant pressure chamber,

3 stories tall, transforms
dry starch into flying
missiles . . . bombards
each particle with an
even distribution of
heat to produce new

Stadex DEXTRINS OF UNSURPASSED UNIFORMITY GREATER DEPENDABILITY MINIMUM

COLOR

Yes—you can always depend on Stadex Dextrins for the same fine results every time. From bag to bag, carload to carload, Stadex Dextrins give you a new high degree of uniformity never before possible in a dextrin.

Thanks to Staley's patented new "fluidizer" process that eliminates dextrinization variables, Stadex Dextrins give better adhesion... possess unsurpassed quality and dependability. And most important, Stadex Dextrins are "cleaner"... with new, lighter color and no overcooked particles.

Available in a wide range of viscosities in whites, canaries and British Gums, Stadex Dextrins are

tailor-made to meet your most exacting requirements. Why not investigate the definite advantages Stadex Dextrins can bring to your operation. For further information, see your Staley Representatative or write:



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NOPCOSANT



You will find it worth your while to get all the facts about Nopcosant—Nopco's newly improved dispersant and solubilizer. Ask your Nopco representative or write for complete information. Remember, too, back of every chemical made by Nopco for the paper industry stands Nopco Technical Service—an experienced staff ready to assist with laboratory data and recommendations based upon your specific requirements.

NOPCO CHEMICAL COMPANY 60 Park Place • Newark, N.J.



Plants:

Harrison, N.J. . Richmond, Calif. . Cedartown, Ga. . London, Canada

Properties of NOPCOSANT

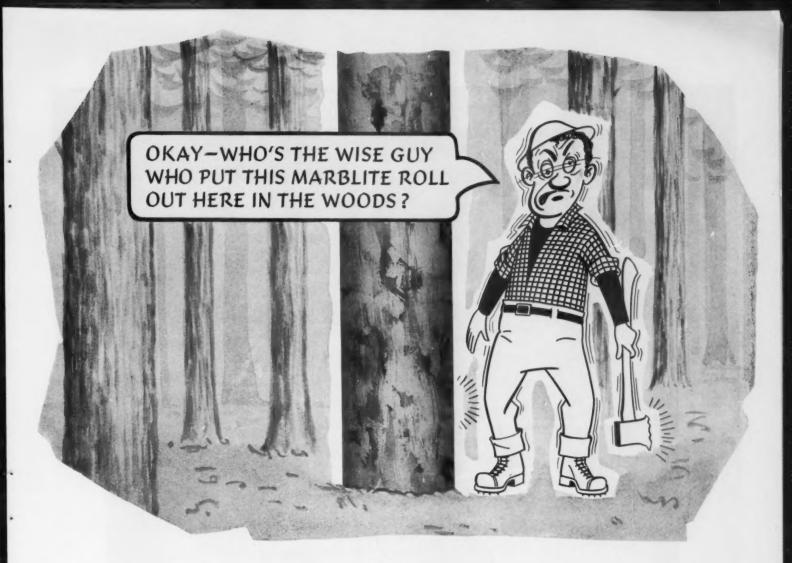
A fine powder of uniform particle size

Dusts less than any other similar product

Lightest colored product of its type

One of the most rapidly dissolving products available

Most nearly natural pH in its chemical class



NEW Griffith MARBLITE

PRESS OR BREAKER STACK ROLL COVERING

Super-hard roll covering specially compounded for top and bottom press or breaker stack positions. The smooth covering of great hardness has excellent releasing qualities and lessens wear on doctor blades. High density of the covering gives exceptionally long life. A roll covered with extra long-wearing MARBLITE can be resurfaced many times before a new covering is required. MARBLITE is achieving excellent results in service.

Write, wire or phone for information and a time estimate on your job.



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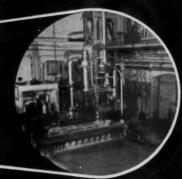
Telephone: CApitol 3-7126

"We're making our finest Glassine— At the fastest we've ever run our machines"...

The Nicolet Vorvac Story

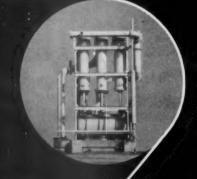


JAN., 1956, MACHINE NO. 2 Vorvac system started up.



JULY, 1958, MACHINE NO. 1 Added a 6-16 Vorvac system and new Head

Box, allowing 50% increased water capacity.



NICHOLS FREEMAN

SEPARATOR SEPARATOR

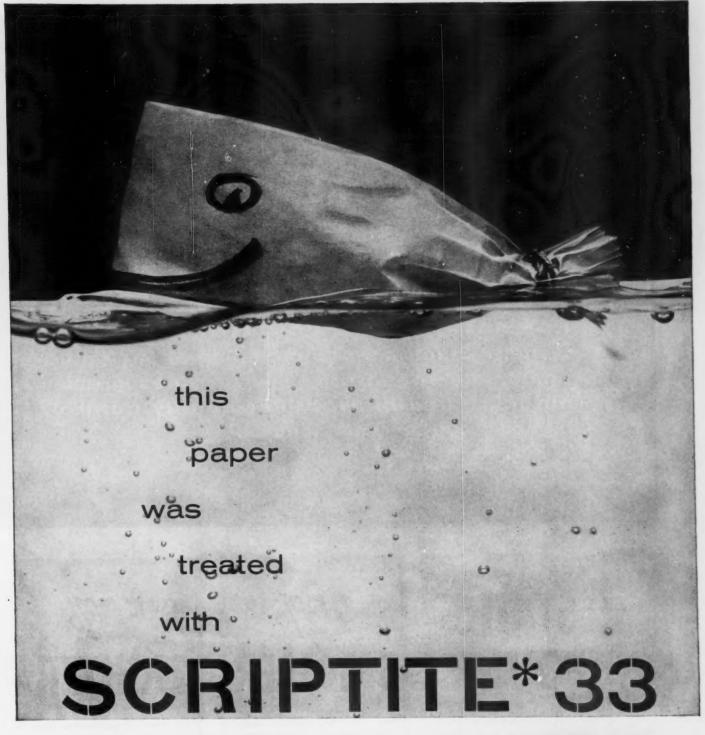
DEC., 1958, MACHINE NO. 3

Ordered Vorvac system for this new machine. Will be similar layout to illustration at left.

Investigate the advantages of a Vorvac system, the time spent will save dollars in production costs.

Nichols Engineering & Research Corp. 70 Pine St., New York 5, N. Y.

405 Montgomery St., San Francisco 4, Calif. 1477 Sherbrooke St. W., Montreal 25, Canada



A melamine resin supplied as a finely divided dry powder, Scriptite 33 imparts high wet strength to many paper products. Count on Scriptite 33 to increase dry tensile strength and wet rub resistance... to improve dry Mullen, wax pick, internal size efficiency, and dry stiffness. Scriptite 33 produces papers with strong fold endurance.

For laboratory samples of Scriptite 33 and technical bulletin, write Monsanto Chemical Company, Plastics Division, Room 1112, Springfield 2, Mass.



The Monsanto line of paper resins also includes

SCRIPTITE 40...a urea type wet-strength resin.

SCRIPTITE 50... for unsurpassed printability and improved surface characteristics on boxboard.

SCRIPTITE 52...in combination with formaldehyde to give water resistance to folding boxboard and to jute liner.

SCRIPTITE 54... for outstanding water resistance and both wet and dry rub resistance.

General Electric Announces Newest In The Complete Line Of Adjustable-Speed Drives

PARMATIC SPEED VARIATOR...newest in General Electric's complete line of packaged adjustable-speed drives ... provides greater machine flexibility, better quality control, higher output and efficiency.

STATIC POWER

for less maintenance, less downtime, added profit. New excitation and power conversion systems have no rotating parts. Sealed silicon rectifiers and saturable reactors need no warm-up, virtually eliminate power unit maintenance.

25% SMALLER

for easier installation. Reliable, long-life G-E components are factory assembled in compact, space-saving power unit, wired and tested before installation to assure accurate control, reduced installation time and expense.

50% LIGHTER

for lower shipping and handling costs. New Speed Variator meets industry's demand for lighter, more powerful drives—packs more power, weighs 50% less than other drives of comparable rating, 2000 lbs less in 100-hp ratings.



FIELD PROVEN

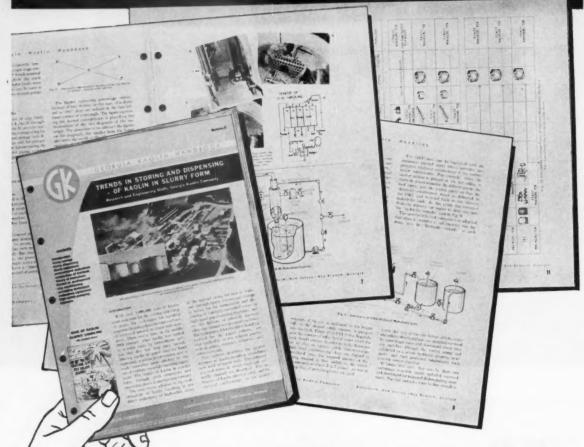
by two years' impressive onthe-job performance in several hundred installations in 15 industries. Experience indicates high operating efficiency, lower cost installation and maintenance for a greater return on your investment.

- GOOD SPEED REGULATION: 5% with 100% load variation. Closer regulation available with modification.
- WIDE SPEED RANGE: Standard Parmatic Speed Variator provides 8 to 1 range or wider if required.
- RESISTS CONTAMINATION: Saturable reactors and hermetically sealed rectifiers resist dirt and moisture.
- QUIET AND VIBRATIONLESS: New power unit design eliminates noise and vibration—expands drive versatility.

Limitations: G-E Kinamatic Speed Variator with motorgenerator set is recommended for applications requiring power absorption for stopping or overhauling loads. For more information, call your General Electric Sales Engineer, or write for GEA-7012, Section 821-1, General Electric Company, Direct Current Motor and Generator Department, 3001 East Lake Road, Erie, Pennsylvania.

GENERAL ELECTRIC

Modern Trends in STORING and HANDLING CLAYS



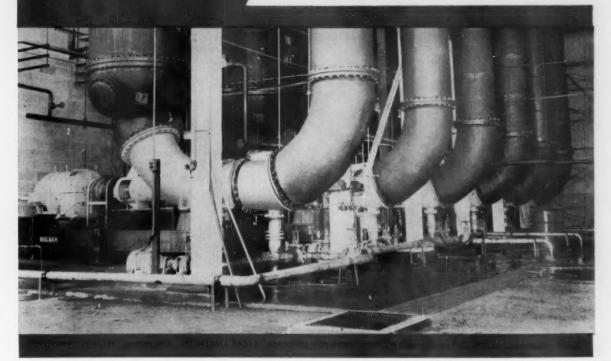
Recently the Georgia Kaolin Company Research and Engineering Departments prepared this bulletin reviewing most of the principal methods of handling bulk clay in paper mills today.

Special emphasis has been placed on the efficiency and economy in handling, pumping, and storing of clay slurried directly from the railroad car.

Paper mill engineering staffs studying the expansion or modernization of their bulk clay handling plants will find the charts, tables, and data contained in this bulletin very useful in planning their future systems.

GEORGIA KAOLIN COMPANY 511 NORTH BROAD STREET ELIZABETH, NEW JERSEY

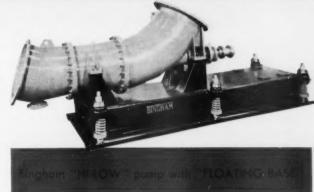
SPECIALLY DESIGNED FOR EVAPORATOR SERVICE



The minimum suction requirement of the Bingham "HI-LOW" Pump (NPSH) reduces the height of evaporators to a minimum with corresponding reduction in structural costs.

The BINGHAM "HI-LOW" PUMP is supplied with a special "FLOATING BASE", which eliminates excessive pipe strains on the pump case caused by temperature changes in operation. The "FLOATING BASE" also reduces foundation loading and eliminates the need for expensive and troublesome expansion joints.

The Bingham "HI-LOW" pump may be used to handle any fluid through evaporators or similar process-primarily designed for chemical recovery systems, may also be used for hot stock, white water transfer, waste liquor, sewage, etc.





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VANCOUVER, B. C., CAN.



B&W High Pressure, High Temperature Boilers for International Paper

Two Recovery, Two Power Units Now on Stream at Pine Bluff, Arkansas Mill

This is International Paper Company's new bleached board and newsprint mill near Pine Bluff, Arkansas. The 60,000 kw power demand, process steam requirements, plus rising fuel costs prompted the selection of high pressure, high temperature steam generating equipment.

Four B&W Boilers—two power and two recovery units—supply steam at the rate of 1,300,000 pounds per hour. The Cyclone Furnace fired power boilers burn bark, oil, coal, or natural gas alone or in combination. Each generates 450,000 pounds of steam per hour at 1275 psi and 1000 F. The recovery units are designed to process 1,170,000 pounds of black liquor solids per day and produce 202,000 pounds

of steam per hour at 1275 psi and 900 F. For efficient heat recovery, they're equipped with economizers, tubular air heaters, and Venturi Evaporator-Scrubbers which reduce exit gas temperatures to 200 F.

Pine Bluff's steam generating system is another example of B&W's ability to meet the rapidly increasing steam demands of the Pulp and Paper Industry. If you're thinking of building a new mill or expanding an old one, we can provide the economical solution to your steam generation and chemical recovery problems. Just write to the Babcock & Wilcox Company, Boiler Division, Barberton, Ohio.



THE BABCOCK & WILCOX COMPANY

BOILER DIVISION

2 new economical direct yellow dyes for paper

FASTUSOL YELLOW RP FASTUSOL YELLOW RG

The dyes used in the coloring of paper add considerably to the cost of the finished sheet. GDC has now developed two new, low-cost, non-dusting direct yellows which offer all the benefits of a premium direct dye at minimum expense.

These new FASTUSOL YELLOWS produce extremely light-fast and bright greenish-yellow shades of the highest degree of even-sidedness. They are ideal for coloring all types of paper—bond, ledger, cover, text, etc.—both sized and unsized.

FASTUSOL YELLOW RP and RG are readily bleached with chlorine for simplified re-use of broke. They can be added dry to the beater without danger of showing color specks. They show no indication of burning-out or migration, hence being eminently suitable for coloring board dried at high temperature.

Try these dyes now in your furnish. The quality of our dyes is backed by the finest skilled technical service and prompt deliveries.

Write or call our nearest sales office for samples and additional information.

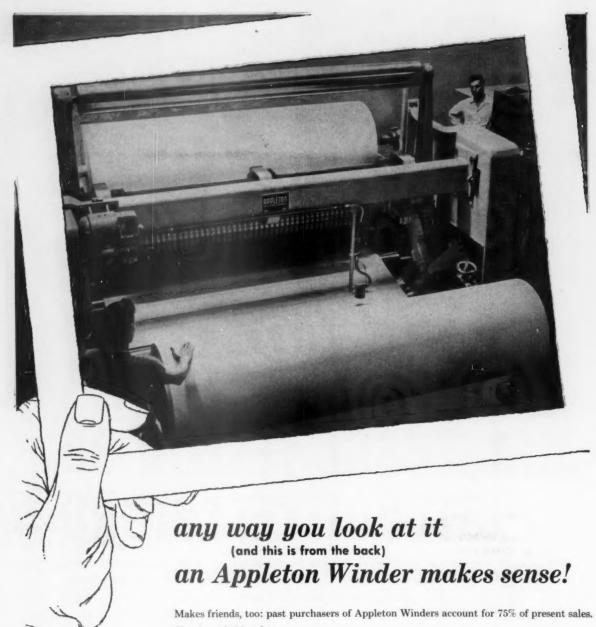
from Research to Reality



GENERAL DYESTUFF COMPANY

GENERAL ANILINE & FILM CORPORATION
435 HUDSON STREET - NEW YORK 14, NEW YORK

CHARLOTTE CHATTANOGGA - CHICAGO - LOS ANGELES - NEW YORK - PHILADELPHIA - PORTLAND, OBE. PROVIDENCE - SAN FRANCIPCO - IN CANADA: CHEMICAL DEVELOPMENTS OF CANADA. LTD., MONTREAL.



Here's probably why:

Above view displays with a clarity that can't be missed the clean uncluttered design for fast, simple threading and easy accessibility that can't be matched.

Requires less floor space and overhead than any other winder of like capacity. Note low silhouette.

The precision and reliability that stems from 75 successful years of paper machine engineering.

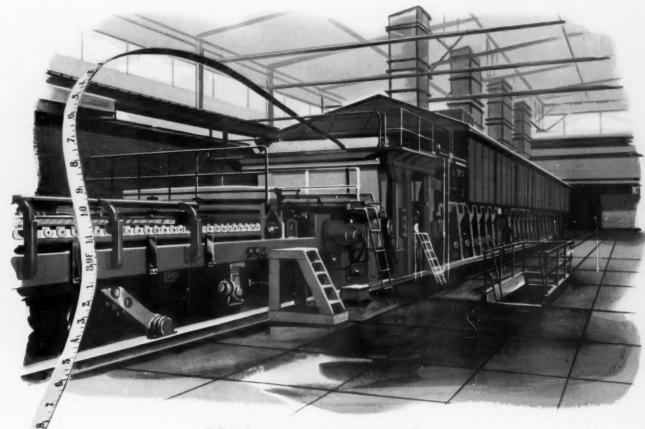
Complete push-button control that delivers man-and-a-half operating economy and efficiency.

There's a fully descriptive brochure on Appleton Winders that's yours for the asking. Also, details of our lease-purchase plan will be sent upon request.



APPLETON MACHINE COMPANY

APPLETON, WISCONSIN



Made to measure?

That's only half the story.

Consider the custom tailor. He studies his subject thoroughly, designs his tailoring to meet individual requirements and takes progressive measurements to assure a fine fitting garment.

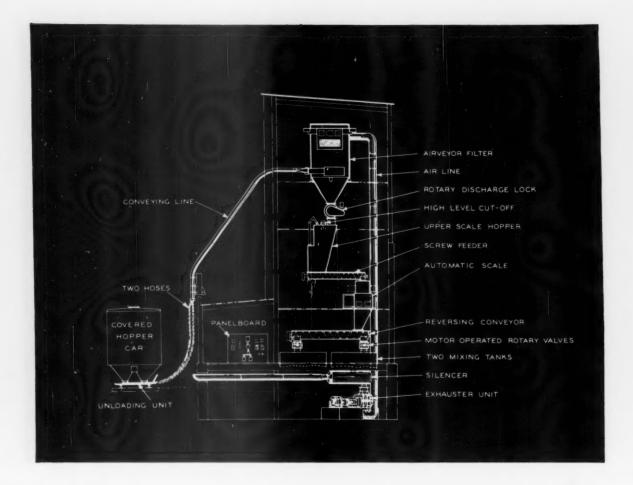
Huyck does even more. Huyck studies all felts every step of the way from the sheep's back to the finished paper product including a careful evaluation of the machine performance of each Huyck felt.

This close scrutiny, literally from the cradle to the grave, spells the difference between ordinary performance and that of new Huyck felts.



Huyck Felt Co., Rensselaer, N. Y.; Aliceville, Ala.; Division of F. C. Huyck & Sons In Canada: Kenwood Mills Ltd. Arnprior, Ontario

YCK FELTS * TALL FABRIES



Fuller conveying system helps paper mill cut clay handling time 65%

At New York & Pennsylvania Company's Johnsonburg, Pa., paper mill a new completely automatic clay slip preparation tower speeds production. New unloading equipment has a capacity of 25 tons per hour. This is in contrast with the old manual method in which 6 men worked 5 hours to unload 30 tons of bag clay. How did New York & Penn do it? With a pneumatic conveying system designed and built by the Fuller Company.

Clay is delivered by railway car.

Each car holds 50 tons of clay which drops by gravity through outlets directly into the unloading unit then into the conveying system. This consists of two 5-in. flexible hoses connecting into a main 8-in. conveying line. Clay is conveyed through a Fuller Airveyor system to an Airveyor filter on the top floor of the building. From the filter, the clay is discharged into a surge hopper through a totally-enclosed Fuller rotary airlock. A Fuller high-level

indicator on the hopper automatically opens a vacuum breaker in the conveying line in the event that clay is unloaded faster than the equipment following the hopper can take it away.

In addition to eliminating a manual operation, the enclosed Fuller system has reduced New York & Penn's clay loss and improved their dust problem. Fuller's wide variety of conveying systems and components can help solve your problems, too. Why not write us today?

1951



FULLER COMPANY

128 Bridge St., Catasauqua, Pa.
Subsidiary of General American Transportation Corporation
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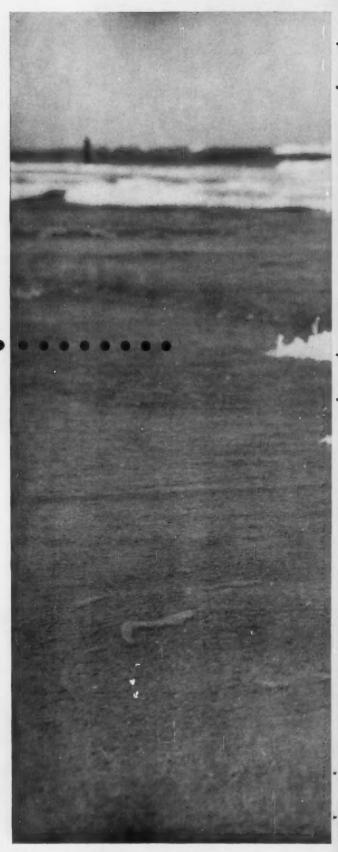
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PULP & PAPER — October 1959



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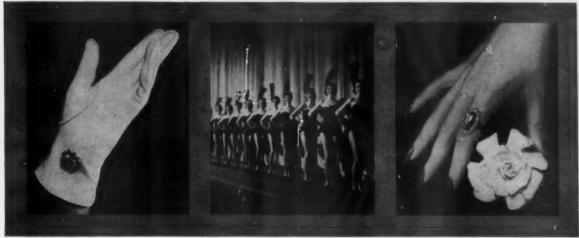
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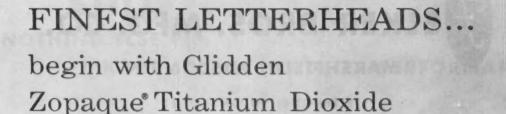


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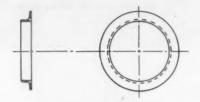
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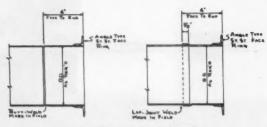
ANGLE FACE RINGS - ANGLE TYPE STUB ENDS REWELD BANDS

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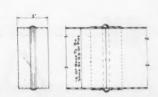
To Combat Failures Caused By Excessive Vibration on Process Lines



Angle Face Rings



Angle Type Stub Ends



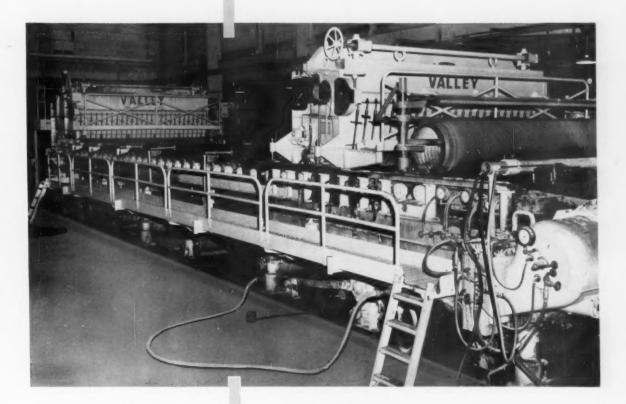
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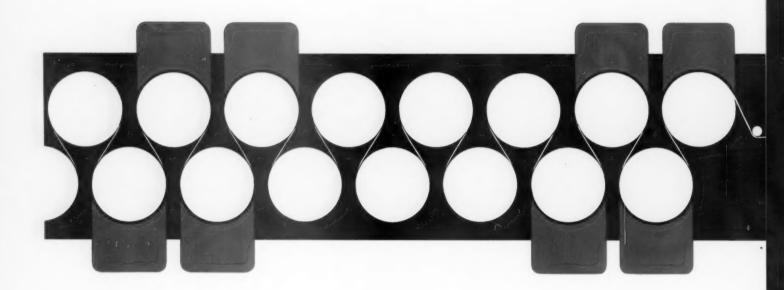
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HOW TO INCREASE DRYING

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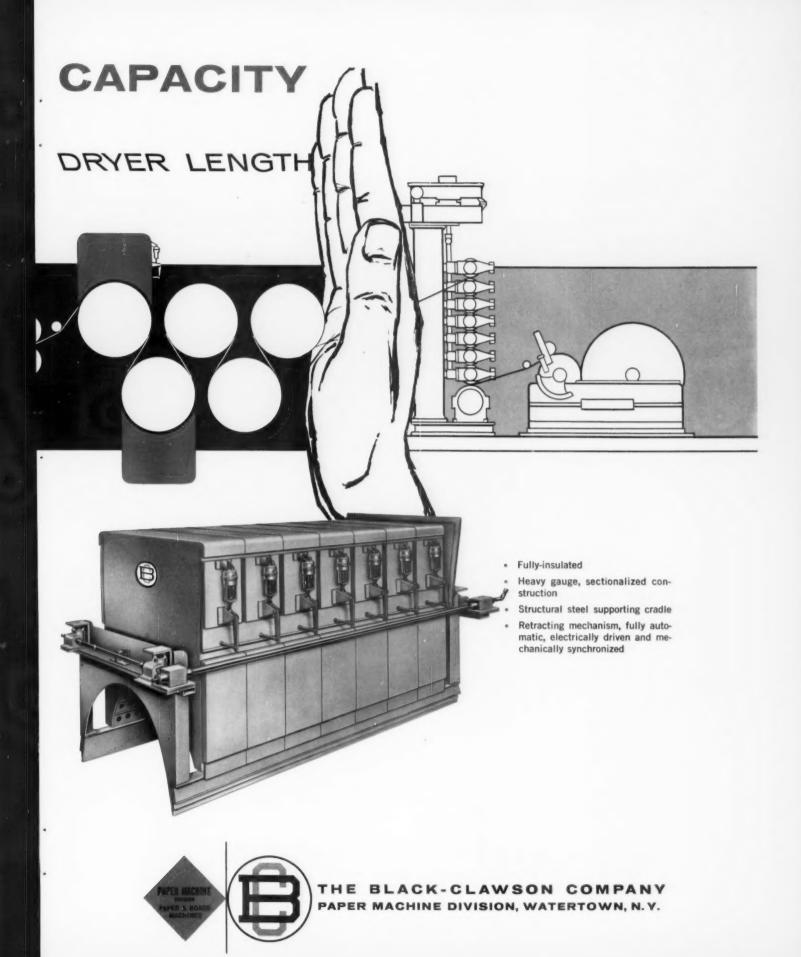
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High Velocity Dryers

Black-Clawson 3-D high velocity dryers will increase the drying capacity of existing paper machines . . . One 3-D dryer equals the addition of 3 or more conventional steam dryers.

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- Ease of Threading . . . entire unit is quickly and easily retracted from the steam dryer.
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- **Temperature controlled** precisely and automatically . . . gas, oil or steam heated.
- Compact, minimum space required . . .
 easily accessible.

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There's Nothing Right about Paper... except that you know how to make it at a cost that gets by...says Dr. Grebe

He predicts: More automation in forest . . . Logs cut into article at pulpwood mill . . . pulp made in a well drilled in rock . . . more paper-plastics products . . . synthetic rosin from oil and salt . . . woodpulp food for humans . . . and it will all smell good . . .

BY DR. JOHN J. GREBE*

I am not contaminated with the inside knowledge that makes your industry tick. I don't know your lingo, much less your science. Nevertheless, I want to shock you by telling you that pulp and paper industry can and must reduce its man-hour cost in real dollars and increase the values or look to its laurels.

I'd like to say that the new products that can and will come out of your industry will be so exciting in beauty and value, so useful for many new applications, and so low in cost and high in consumer values, that those who expect your output to double in about 20 years are conservative and haven't glimpsed your capabilities.

The hand labor involved from cutting wood to delivering the products to the customer hasn't been reduced much. Transportation, also, is too big an item. The raw materials for most plastics are transported through pipelines from anywhere in the country to almost any other place, with very low handling charges.

This leads to a reevalutation of the overall operation of bringing forest products to the consumer. What would I do about it if I were managing research for your industry?

Forests Here to Stay . .

First, I would recognize that this industry's natural assets are far more

fundamental and important for the future than most people admit. No matter how well the chemical and plastics industry takes advantage of their particular assets, the forests are here to stay. Progress in good forestry management will accelerate because it is worthwhile to develop not only the timber but the wild life and recreational values of our lands.

It seems a pity to see wood valued at a few dollars a ton as it stands, require so much labor and expense to bring it to the pulp mill. Our operations are geared to very slightly modernized methods of harvesting. But power is becoming more available all the time and what the substitution of automatically controlled power devices will do for manually operated power tools is more than we can go into now.

But the real waste begins at the pulp mill. There, by mechanical, chemical and thermal means, we destroy the structure of that beautifully designed and formed wood stock. The pulp industry now does what slaughter houses would do, if they took the hair off the beef cattle and then made nothing but hamburger and waste products that are carefully engineered to be difficult to deal with and hard to dispose of.

A Variety of Processes . . .

Imagine logs at a pulpwood mill going through a variety of channels depending on the form and kind of wood. Nothing is cut into smaller pieces unless it has no value in its larger aggregate. Each time a cutting or slicing or crushing operation is done, it is the result of careful, automatic selection by devices much more accurate, reliable and quick than human judgment. The wood that can be shaped and cut into useful articles and



DR. JOHN J. GREBE

structural elements is quickly dried by diathermy, impregnated to make it fire-retardant, and rot-proofed and surface-finished with solid plastics. Then the articles are packaged and shipped to a retail outlet at such low cost that much of the business that now goes to metals and concrete will revert to more versatile, flexible and useful wood-based products.

Finer subdivisions-slats-of original wood that was beautifully grained, marvelously tough, versatile, will be assembled with plastic bonding techniques into plywood products, quite different from present flat plywood sheets. Complete canoes can be made in one piece of sliced, plied flakes of wood set in resin. You can provide triangular segments with beauty, strength and insulation for Fuller domes. Why not make complete furniture, walls, floors and roofs in preformed curved surface panels? Tougher, cheaper, safer, non-corrosive pipes of wood combined with plastics and minerals like cement and mica could be used for almost anything except heat transfer. Only that portion of the logs not easily converted into more valuable products would be used

Just Drill a Hole in the Ground . . .

When finally pulp, as you know it now, must be made, it certainly won't be done by the cumbersome batch processes of the present. Even continuous devices currently used are expensive and complicated compared with what they ought to be.

[°]Dr. Grebe is vice president and director of Dowell Inc., a Dow subsidiary. He graduated from Case Institute of Technology in 1924, received an m.s. in 1928. He ioined Dow in 1924 and was director of the physical research lab until 1949. He holds over 50 patents in electrochemistry, power generation, synthesis of organic compounds and air conditioning. In 1953 he became director, nuclear and basic research dept., Dow Chemical Co.

Think of a well several hundred feet deep drilled into solid rock about 20 in. in diameter. (It is being done by core drilling methods that leave you with a bunch of Grecian pillars for sale as a by-product.) In the absence of granite outcrops, I'm sure you won't mind the cost of a liner to the well.

You drop cold chips and water and chemicals down through a combined heat interchange and tubing, then mix it with steam at the bottom to arrive at the operating temperatures under the necessary hydrostatic head for adequate cooking. You react raw materials on the way up under continuous flow agitation.

As pressure decreases steam bubbles are separated and preheat the fluids going down. The finished products froth over the top of the discharge pipe, for further continuous similar processing and separation, making it possible to use as many stages of chemical and thermal action as desired. The reagents can be a minimum and the by-products can be separately worked up for their inherent value.

From this almost complete degeneration of structure, the pulp will experience an increasing amount of chemical and plastic modification till it will be hard to tell where paper ends and plastic foil begins. There will be a complete range of products, from blotting paper to better plastic foils. Why not make really good plastic windows by paper mill technology?

Think of the approach you now use for rosin sizing to bond the individual fibrils. This is an expensive way to use a cheap natural plastic and, incidentally, a laborious way to contaminate water. How much better to make a rosin or plastic polymer in the form and with the properties desired in the first place, using oil and salt rather than laboriously collected pine stumps.

Just think of the difficulties you have because paper when first formed on the screen has such low strength. An obvious solution is not to destroy so much of the wood structure in the first place. Methods of mechanically subdividing the fiber structure and, at the most, hydrolyzing with water, as in making the fine products of the Masonite Co., make it possible to rebuild the form and shapes desired with the minimum of additional agents.

Hungry? Have a Piece of Tree . . .

A marvelous by-product of such an operation is that wastes are contaminated the least possible. You obtain waters rich in hemicelluloses without a lot of chemical poisons. This, instead of waste, is a precious raw material for food. We enjoy meat now,

but compared to the kind of steak we could have—a yeast steak—it is a poor approximation of a good thing.

Of course, for a while, these products, cultured by addition of nitrogen, phosphorous and trace elements, will be available in food for cats and dogs. But sooner or later such excellent foods will become fashionable for men. I won't deny that I like yeast, both in the crude unpalatable way it is now sold, as well as in beer.

But what to do with the residue from these operations, bark, lignin, etc.? With mineral additions, the proper bacterial digestion of this material will make a soil builder for the gardens and plants.

What do you do with the crude

from these final operations? You simply pump the wastes into the ground. Almost any material can be so disposed, as Dowell, Inc., has demonstrated. In general, sedimentary rock below sea level is not likely to contaminate useful water.

You may think we have taken care of everything but the "squeal." But we have missed something of great beauty and esthetic value. Let's use the raw materials in the original trees to produce a fresh fragrance, rather than stagnant stinks, so that opening a book or magazine has the proper fragrance.

Competition still is the spice of life! Let's look for many more years of American ingenuity.

Representative Pulp and Paper Companies Sales and Earnings – First Half 1959

	Net Income (000)	Income Bef. Taxes (000)	% of Sales	Net Income (000)	Net Per Share	
MARKET PULP (Also Lumb	er, etc.)					
Brown Co. 11/30	30,401	\$ 819	2.7%	\$ 503	\$0.19	
Georgia-Pacific Corp.	89,787	10,917	12.2	7,017	1.34	
Puget Sound Pulp & Timber	16,184	4,498	27.8	2,159	0.83	
Rayonier, Inc.	65,717	11,934	18.2	6,592	1.20	
MacMillan & Bloedel Ltd.			100	0.000	1 80	
(Fiscal yr. 9/30)-(2 & 3 Qu.)	103,371	17,353	16.8	8,390	1.58	
Weyerhaeuser Co.	221,681	50,573	22.8	30,683	1.01	
NORTHERN INTEGRATED		NIES				
Abitibi Power & Paper*	64,953	11,360	17.5	5,321	1.22	
Consol. Water Power & Paper	40,991	6,667	16.3	3,012	1.18	
Diamond Gardner	91,923	n.a.	-	4,008	1.04	
Fibreboard Paper Products	58,135	n.a.		2,715	1.55	
Gladfelter Co., P. H.	13,379	2,489	18.6	1,132	1.55	
Great Northern Paper Co.	25,521	1,365	5.3	654	0.63	
Hammermill Paper Co.	31,553	3,156	10.0	1,578	1.28	
KVP Co. (9-30)-(2 & 3 Qu.)	26,756	2,554	9.5	1,268	1.40	
Oxford Paper Co.	36,521	2,769	7.6	1,357	1.10	
Warren Co., S. D.	35,889	5,316	14.8	2,545	2.35	
INTEGRATED—NORTH &	SOUTH					
Champion Paper & Fibre Co.						
(Fiscal yr. 3/31)-(4 & 1 Qu.)	92,446	8,995	9.7	4,522	0.97	
Container Corp. of America	136,590	17,787	13.0	8,571	0.80	
Crown Zellerbach Corp.	257,364	37,119	14.4	19,226	1.35	
International Paper Co.	505,506	n.a.	-	40,170	3.05	
Mead Corp.	144,464	13,257	9.2	6,210	1.25	
Riegel Paper Corp.	35,698	3,074	8.6	1,525	1.15	
St. Regis Co.	211,176	25,576	12.1	13,422	1.50	
Scott Paper Co.	146,613	24,117	16.4 22.9	11,892	1.48 1.30	
Union Bag-Camp Paper Corp.	88,315	20,180	22.9	9,580	1.30	
West Virginia Pulp and Paper (Fiscal yr. 10/31)-(1 & 2 Qu.)		10,475	9.3	5,475	1.02	
NON-INTEGRATED PAPER	COMPA	NIES				
American Writing Paper Corp	. 7,945	669	8.4	321	1.19	
Sutherland Paper Co.	33,776	n.a.	_	1,278	1.13	
CONVERTER CO.						
Dennison Manufacturing	18,423	1,551	8.4	794	1.18	
-	20,220	-,		1		
Canadian Dollars						
n.anot available				3		

The sales and earnings for the first half of 1959 were especially prepared for PULP & PAPER by Cyrus J. Lawrence & Sons, members New York Stock Exchange, from statistical services and published reports. While the figures are believed to be correct, no guaranty is given as to their accuracy.

New Officers in Kimberly-Clark Corp.; Worldwide Operations Extend to 8 Nations









Wm. R. Kellett ... G. Kenneth Crowell ... Lewis E. Phenner ... Andrew G. Sharp

William R. Kellett, whose entire career has been with Kimberly-Clark Corp.—both before and after his graduation from the University of Wisconsin in 1922—has been elected the new president of that world-wide papermaking organization.

Mr. Kellett has been executive vice president since 1953 and was elected a vice president in 1951. He succeeds John R. Kimberly as president, but the latter continues as chairman of the board and chief executive officer.

Succeeding Mr. Kellett as executive vice president is G. Kenneth Crowell, who has been the legal vice president of the firm and, since 1956, also has served as secretary. Last year Mr. Crowell was named to head the financial and comptroller divisions. Preceding Mr. Crowell and Mr. Kellett in the position of executive vice president was Ernst Mahler, Darmstadt Institute (Germany) graduate, who held the post many years before his retirement in 1953.

Board Changes

The board advanced two vice presidents and elected two new officers. Lewis E. Phenner and Andrew G. Sharp were elected senior vice presidents. New officers are William J. French, vice president of sales for consumer products, and William W. Cross, vice president of sales for industrial products. Roger A. Baird, assistant secretary, was elected secretary, one of the posts formerly held by Mr. Crowell.

Mr. Kimberly said "these organizational changes were made to strengthen and increase the efficiency of the company's central management group."

Donald C. Slichter, president of Northwestern Mutual Life Insurance Co., Milwaukee, U.S.A., is a newly elected member of a 13-man board of directors. The board was reduced by three, as four previous members were not re-elected—three of these have re-tired—Cola Parker (former president), Charles H. Sage and S. F. Shattuck. One other, Fred S. Seaborne, now heads all Kimberly-Clark Canadian activities.

Sales of \$368,232,380

Kimberly-Clark Corp., based at Neenah, Wis., announced sales totalling \$368,232,380 for its fiscal year ending last April 30, about \$22,000,000 more than the previous year. For the final quarter of its last fiscal year, sales exceeded \$100,000,000. Sales of two associated newsprint companies exceeded \$60,000,000 in the past year. These are operated and partly owned by K-C.

Capital expenditures by this company will total about \$24,000,000 in the year ending next April 30, which compares with \$115,000,000 spent in the past five years on new plants. A major project, in which K-C has 35% interest, is a new 75,000-ton sulfate pulp mill and chlorine dioxide bleached plant at Irving Pulp & Paper Ltd., St. John, New Brunswick, Canada.

Other expansion in North America included acquisition of American Envelope Co., with a paper mill in West Carrollton, Ohio, new wadding mills built at New Milford, Conn., and St. John, N. B.; new paper machines at Mt. Holly Springs, Pa., and Spotswood, N. J., and tissue converting at St. Hyacinthe, Que., New Milford and St. John.

Worldwide Operations

Kimberly-Clark's business outside North American consists of (1) export of consumer and industrial products, and (2) manufacture and sale of paper and cellulose wadding products by consolidated subsidiaries and associated companies in six countries. All these operations are growing. Seeing attractive opportunities for increased tractive opportunities for increased, Kimberly-Clark is planning further development of its operations abroad.

The English company recently completed expansion of converting and warehouse facilities and has added a second cellulose wadding machine at Aylesford, Kent. (The British Reed Group owns one-third of this operation.) The English company serves the United Kingdom, Europe, the Near East and other areas.

In Australia, a converting plant at Sydney has grown in the past two years and a South African plant at Johannesburg recently enlarged converting facilities.

The Mexican subsidiary has two mills in which it produces a variety of papers and consumer products, sold mostly in Mexico and Central America. It recently added a second machine in its Aurora mill in Mexico City.

A new converting plant at Stockstadt, Germany began production in 1958 of cellulose wadding products.

A cigaret paper mill Quimperlé France, in which Kimberly-Clark has a controlling interest, sells in world markets and is one of the largest mills outside the U. S. producing this.

Timber "Felled" by Weyerhaeuser

As of September 1, Weyerhaeuser Timber Co. became Weyerhaeuser Co. At the same time, the firm adopted a new symbol for its products—an abstract tree within a triangle.

"When the company was formed 60 years ago," President F. K. Weyerhaeuser explained, "it was exclusively in the business of managing timberland. But now, its use in the company title does not indicate adequately our wide range of products or new products to come."

Decides to Take Abney-Scapa Suit to Supreme Court

Brandon Sales Inc. announces that its parent organization, Abney Mills of Greenville, S.C., is entering an appeal to the U.S. Supreme Court against a recent U.S. Court of Appeals judgment in favor of Scapa Dryers Inc., of Waycross, Ga. The latter court (5th Circuit) had reversed a lower court judgment which enjoined the Hindle-Scapa interests from using or operating the Hindle looms developed in Blackburn, England, in manufacture of dryer felts in the U.S.A.

Pelletizing May Make Wet-Lapping Obsolete and Make Possible Important Savings

In discussing this article by Mr. Shook with the manager of one of the U.S.A. mills which has been trying out this process for several months, the editor of this magazine was told that this revolutionary process of the production of pulp as pellets might make obsolete the wet-lapping of pulp and storage of wet-lapped pulp.

"This would be a tremendous saving," the manager of this mill said. "Probably nowhere in pulp and paper operations, except possibly in the woodroom, is there as great an opportunity for savings as in the making of wet-lap pulp.

"So this may certainly develop into a revolutionary process, providing mills with a great opportunity for savings."

Pulp in Pellets-A New Process

tested in U.S.A. and Australia, makes possible bulk material handling, lower investment, lower shipping and handling cost

(Mr. Shook, sales manager of S-W's pulp and paper equipment division, is a 10-year veteran with the company. He is a graduate of Bucknell U., with two engineering degrees, an m.e. and p.e. (professional engineer in Pennsylvania).

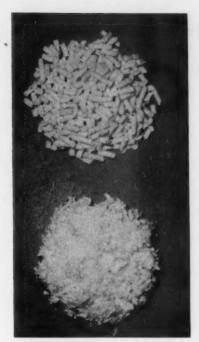
By R. E. SHOOK Sprout, Waldron & Co. Inc.

 Three pilot plant installations for a new pulp pelleting process have been made and considerable laboratory data accumulated in the past 1½ years. The pelleting of pulp—which brings the advantages of bulk handling to the pulp and paper industry—was the result of experiments undertaken by Sprout, Waldron & Co. Inc. (Muncy, Pa., U.S.A.).

TABLE I - PULP PELLET DATA

Œ.				Stru		Pack							æ				œ		
Type	Co.		H_2O			De				urst			Te	-			Tei	nsile	
Fiber	Code	Stage	%	As-Is	B.D.	As-Is	B.D.	500	400	300	200	500	400	300	200	500	400	300	200
Ground-	SW-1a	Press Pellet	53.0	_	_	_	-	_	-	_	0.20*	-	-	-	0.66	-	_	_	1133
wood	SW-1b	Mill	51.2	-	-	-	-	-	-	-	0.24*	-	-	-	0.61	_	-	_	1728
	SW-1c	Dryer	16.5	14.8	12.3	16.5	13.8	_	_	_	0.17*	_	_	_	0.53	_	_	-	1492
80 GE	SW-2a	Press Pellet	52.5	20.5	-	_	-	1.10	1.16	1.16	1.14	2.08	1.88	1.70	1.58	6150	6600	6900	712
Kraft	SW-2b	Mill	51.1	25.0	12.5	_	-	0.98	1.10	1.16	1.21	1.99	1.72	1.56	1.50	5800	6500	7300	7600
	SW-2c	Dryer	11.9	14.3	12.6	17.6	15.6	0.80	0.94	1.01	1.07	2.50	2.20	1.98	1.82	5400	6300	6700	6750
Unbl.	SW-3a	Press Pellet	55.0	22.0	9,9	_	-	1.02	1.09	1.14	1.15	1.56	1.54	1.52	1.46	7050	7350	7500	7556
Sulf.	SW-3b	Mill	53.6	26.5	12.3	_	consists	1.02	1.15	1.23	1.25	1.62	1.57	1.48	1.31	6900	7975	8250	795
	SW-3c	Dryer	15.3	18.3	15.5	22.1	18.8	0.64	0.86	0.94	0.99	2.28	1.92	1.78	1.68	4500	5700	6300	6350
Blea. Semi-	SW-4a	Press Pellet	60.8		10.7		_	_	_		0.71	_	-	1.21	1.18	-	-	5050	512
Chem.	SW-4b	Mill	57.0	31.5	13.5	_	-	-	-		0.67	_	-		1.10	_	_	4274	570
	SW-4c	Dryer	21.6	23.5	18.4	-		_	_	0.25	0.41	_	-	0.79	1.05	_	_	2510	377
		Shred																	
Blea. Kraft	SW-5a	Wet Lap Pellet	55.6	10.0	4.5	_	_	1.44	1.60	1.64	1.60	1.66	1.60	1.54	1.54	9750	10050	10500	1102
	SW-5b	Mill	55.4	23.0	10.3	-		1.37	1.56	1.62	1.60	1.76	1.72	1.60	1.44	9600	11100	11250	1050
	SW-5c	Dryer	3.9	15.2	14.6	-		1.10	1.24	1.28	1.30	2.60	2.24	2.00	1.82	6600	8100	9375	1010
		Shred																	
Blea. Kraft	SW-6a	Wet Lap Pellet	59.2	10.0	4.1		-	0.38	0.57	0.67	0.73	1.25	1.31	1.34	1.16	2800	3600	5100	535
	SW-6b	Mill	59.0	24.0	9.5) —	-	0.44	0.53	0.64	0.74	1.20	1.20	1.18	1.00	4500	4900	5250	615
	SW-6c	Dryer	14.0	-	*******	_	_	0.32	0.44	0.52	0.58	1.19	1.19	1.12	1.08	2140	3300	3900	

^{* 80} Freeness



PELLETIZED PULP (above) and UNPELLETIZED PULP (below).

Much concern had been expressed over the possible formation of pulp nodules. However, it has been found that these nodules are easily dispersed in the refining equipment that normally precedes the paper machine. In all cases where large laboratory samples (500 to 2000 A.D. lbs.) have been furnished for an actual mill run, no difficulty has been encountered with the repulping of the pellets. This applies to pellets for high-density storage at 45 to 50% O.D. consistency, as well as to pellets that have been dried to 100% A.D.

Effects of pulp pelleting on strength characteristics are shown in Table I. Three comparisons have been made in all cases: Mechanical dewatered stock from a screw press or a shredded wet lap stock is shown in comparison with pulp pellets as they come from the pellet mill and also in comparison with fully-dried pellets.

Using a stock consistency of 3.89%, the data in Table II is typical of the results of a laboratory evaluation of the repulping characteristics of the pellets.

Results of a test on unbleached NSSC are shown in Table III.

Redispersion Time Reduced

In comparing the pelleted pulp with stock from a screw press it was noted that there is considerably less evidence of nodules and a reduction in the required redispersion time. The pellets can be handled with conventional bulk materials handling equipment. A comparison of the O.D. density of the dried pulp pellets as compared with baled screw press stock at 35% consistency, shows a 50% increase in fibers per cubic foot. This, however, is not the case comparing the dried pellets with dried sheet pulp.

Fig. 1 shows a typical pulp-pelleting equipment arrangement. Where drying is not to be incorporated in the con-

ventional equipment arrangement, the pellets can flow directly from the mill to the bulk transportation facilities or to inplant high-density storage bins (Fig. 2), where the various grades can be separated, and from where they are automatically transported to repulping equipment. The arrangement makes it possible to have precision blending of the various grades—a com-

TABLE II - REPULPING EVALUATION

	Dispersion	
	Time	
Sample	(Minutes)	Observations
SW-1a	30	Fair dispersion past 15 minutes; good dispersion past 30 minutes.
SW-1b	30	Same as SW-1a.
SW-1c	30	Same as SW-1a.
SW-2a	14	Good dispersion, minute nodules present.
SW-2b	13	Good dispersion, less minute nodules.
SW-2c	11	Complete dispersion.
SW-3a	12	Good dispersion.
SW-3b	12	Good dispersion at 10 minutes with minute nodules.
SW-3c	30	Minute fiber bundles at end of 30 minutes. Fair dispersion.
SW-4a	20	Good dispersion, few minute nodules.
SW-4b	20	Good dispersion, fewer minute nodules.
SW-4c	20	Good dispersion, few minute nodules.
SW-5a	19	Complete dispersion.
SW-5b	12	Almost complete dispersion.
SW-5c	15	Almost complete dispersion.
SW-6a	15	Good dispersion, few nodules.
SW-6b	- 15	Good dispersion, few nodules.
SW-6c	15	Good dispersion, few nodules.

Note: All of the above pulps can be redispersed with commercial equipment. The nodules can be easily removed by the pre-refiners to the paper machine.

TABLE III - UNBLEACHED NSSC

	C.S.F.	Min. Beating Time	Mullen %	Tear	Fold @ 350 CSF	O.D. Density
Screw Pressed Stock @35% O.D. Cons.	610	32	53	102	88	10#/cu. ft. in bale
Pellet Pulp Dried to 99% O.D.	580	27	51	114	304	15#/cu. ft. loose pack

TABLE IV - COMMERCIAL RUN

	Pelleted Pulp	Objective
Basis Wt. 24 x 36 x 480 Caliper Densometer (Gurley) secs. Tear — Elmendorf MD	33.2 .0055 10 72	30.7 .0048 9
Tensile lbs./½" Stretch	104 4.9	98 5.8
Ultimate MD CD	1.0 2.1	2.0 3.8
Double folds MD CD	17 2	-
Compactness Stiffness (Gurley) MD	60	64 78

pletely automatic batching system (Fig. 3). Pellets can be unloaded pneumatically to individual bulk storage bins or to a single storage facility. At a specialty mill, where it is necessary to serve several machines with various grades, the system can be completely automated through the use of an automatic batching scale with IBM cards.

Recent work on a large run of pel-

leted bleached kraft pulp on a Fourdrinier machine has shown that pellets dried to 89% O.D., stored more than two months, then slurried will show a complete absence of nodules and give satisfactory results.

Approximately 2000 O.D. lbs. of the bleached kraft paper pulp were received at 45% consistency in wet lap form. The pulp was fluffed through an attrition mill with spike tooth plates and then pelleted in a full-size commercial pellet mill through a 10/64-in. dia. stainless steel die. The pellets were then dried in a commercial rotary dryer and returned to the mill, where they were stored more than two months prior to repulping.

The dry pellets were repulped in a Hollander beater (with the rolls just out of contact) for a period of 120 min., then dumped into an agitated stock chest. There was practically no refining as such, though the stock did pass through a jordan with the plug pulled back. The freeness from the stock chest was 635 CSF as compared to a 600 freeness at the discharge of the jordan.

This run was on a commercial basis, the paper made for saturating purposes. No evidence of nodules was found in spite of the fact that there was virtually no refining. Quality, according to the men in charge of the run, was "completely acceptable." Specific data are given in Table IV.

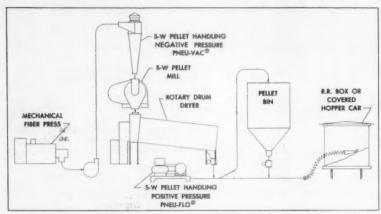


FIG. 1—PELLETING SYSTEM developed by Sprout, Waldron showing mechanical dewatering, denodulizing, drying, bulk shipment.

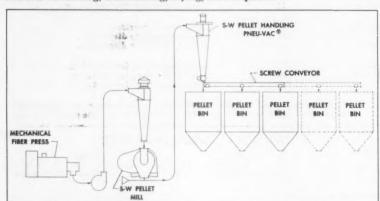


FIG. 2—HIGH-DENSITY STORAGE showing mechanical dewatering, pelleting, drying, bulk storage.

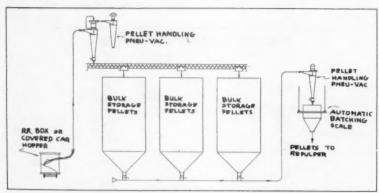


FIG. 3—PELLETING SYSTEM showing bulk receiving, storage, automatic batching to repulper.

Three Pilot Installations

One of the pilot installations now in operation is on dissolving pulps, one on Mitscherlich type and one on semichemical pulps. Development work with respect to dissolving pulps is being carried out at a western pulp plant.

The application of pelleted pulp to viscose and cellulose derivative manufacture is being investigated by several firms.

The Mitscherlich installation is at a Midwestern U.S.A. sulfite mill. It was set up primarily for the purpose of high-density pulp storage at 45 to 50% consistency. Pellets at this consistency will eventually be stored in bulk storage bins (Eds. note: Probably A. O. Smith's glass-lined silo) and transferred automatically to the various repulpers ahead of the paper machines.

The semi-chemical pulp installation is at Australian Paper Manufacturers Ltd., Melbourne, Australia. Although very little actual data is as yet available, reports are that the pellets are "completely acceptable."

In addition to advantages already cited—including the possibility of bulk materials handling, the Sprout, Waldron pulp-pelleting process is said to permit (1) lower capital investment; (2) lower shipping costs; (3) lower handling costs; (4) reduced maintenance and down-time; (5) high-density storage; (6) minimized freezing hazards and (7) high-density bleaching.

With the pulp and paper industry's investment so great in its present methods of operation, it is certainly not to be expected that the transition to bulk will come overnight. On the other hand, the economies in bulk handling are obvious, and the transition must definitely be on the way.

"Total Marketing's" Big Surprise

... for pulp and paper industry management is revealed in the discovery of new distribution methods and channels

● After two decades of a "seller's" market, most top pulp and paper management was confronted last year with the problem of shifting gears overnight from production-minded thinking to total marketing. In moving into the total marketing concept most companies were forced to make an overdue re-appraisal of their channels of distribution, and what they found was startling and in many instances disturbing.

To determine the facts and present them in a concise, useful way to the industry, "PULP & PAPER" has once more turned to Edward McSweeney, vice president and treasurer of Perkins-Goodwin Co., a leading management consultant and a prolific writer and speaker on management subjects for over 25 years. Mr. McSweeney has contributed to clarifying the "total marketing" concept, and he used this term, now widely adopted in business in an interview which appeared in these pages two years ago.

Mr. McSweeney: Total marketing management is the over-all function of moving goods from the raw material into the hands of the ultimate consumer, utilizing all modern preselling and selling techniques. This, of course, is a simplification. Total marketing has evolved as a necessary, vital part of top management thinking, is the result of the continuing trend toward more complete integration of raw material, operations and marketing, and diversification of end products.

Total marketing management in its

present stage of development is a combination of the new sciences of weighing and evaluating markets and consumer preferences and the application of creative skills. The emphasis must be on the creative skills to cope with the great shift in the major channels of distribution. The growing importance of chain stores, supermarkets and other types of discount houses and the changing role and character of the traditional merchant have been important factors in the ever-growing number of pulp and paper firms which are appointing marketing heads whose first duty is to apply this total marketing concept. Stated another way, marketing management's job is not only to develop sales but to increase efficiency all along the line by elimination of waste.

Q:: You mentioned chains, superamarkets, and other types of discount houses. Just what is their impact on total marketing?

Mr. McSweeney: The greatest expansion in per capita paper consumption since the end of World War II has been due primarily to the revolution in retail purchasing. The variety chains, supermarkets, and discount houses have practically eliminated the influence of the old-line salesman. and have reduced the importance of the old-line wholesaler. Nationally advertised brands must not only presell customers before they get into the store, but packaging and point-ofsale material must be compelling enough to overcome the inertia of a shopping list. Summed up, the emMR. McSWEE-NEY: "The greatest expansion in consumption of paper since war . . . due primarily to a revolution in retail purchasing



phasis on self-service mass merchandising has resulted in a boom in functional paper, while communication papers have just about held their own. Another clearly defined trend that must be appraised is the growth of papers that are going into the educational boom.

Q.: Let's follow some of these trends to our channels of distribution.

Mr. McSweeney: Historically, the paper merchant has been an important factor in paper distribution. In fine papers, for example, 75% of the total production is distributed through the paper merchant. The stocking paper merchants render an important service function to the printer and small retailer, but more than one expert thinks they are committing "mass suicide" by their refusal to accept the economic facts of life. Obviously, for some products the old-line stocking merchant can continue to fill an important role, but only a few will have the resources and creative ability to adjust to the changing market con-

While the mills are either resolving their differences with the old-line merchants or taking them over, the new head of marketing will be studying other channels of distribution and will probably be amazed at what he discovers. As a result of fact-finding surveys, mills have been buying customers to integrate into conversion. Others are developing products that will give them a base in a captive market. Wholesalers who have no relationship to the traditional merchant are flourishing.

More important, he will discover that a few selling agents have so embraced the principles of "total marketing" that they are rendering a service unheard of until the end of World War II. They can be described as pulp and paper marketing specialists.

Pulp and Paper Companies Adopt Marketing Concept

Importance of new techniques for marketing and distribution is being recognized by many companies in this industry.

Howard Whitaker chairman of the board of The Mead Corp., has said that Mead must become a marketing company instead of just a manufacturing company. "Marketing is starting from the customer's viewpoint rather than the manufacturer's. This means, first, finding out who the customers are; second, what they want, and third, how much they will pay. Then, on the basis of this knowledge, decide whether or not we can sell or produce the product for them at a fair profit for the company."

At Great Northern Paper Co., M. C. McDonald, president, has appointed A. R. Caspar as vice president-marketing. First move in a big step forward.

Donald Leslie, president of Hammermill Paper Co., told his stockholders recently: "The intensely competitive markets of 1958 emphasized the continued need for concentration on the development of new and improved products, expanded sales efforts, extensive national advertising, and broadened distribution . . . Our plans for 1959 call for increased sales and product development effort . . ."

New Bale Handling System

... developed by Uddeholms AB, Sweden, involves several novel types

of equipment. Moves 20 pulp bales at a time.

By ERIK SUNDBLAD Chemical Engineer and Assistant to General Manager Uddeholms AB, Skoghallsverken

Skoghall, Sweden

It is hard to find two companies
which can use exactly the same solution for a transport or storage problem. Standard solutions will not be
applicable. Each company must do its
own projecting work, compiling parts
of solutions and ideas from different
sources into a coherent chain.

At the Skoghall mills (near Karlstad) we have chosen unusual methods for the transportation and storing of pulp bales.

We are now somewhat short of space, especially near the harbor. We have, however, very good building ground—solid rock. the warehouses should therefore be kept to a limited space and still be able to grow with the increased production. We have

thus chosen to store the pulp in high stacks and, consequently, handle it with overhead cranes.

The advantage of this system is especially obvious for a viscose pulp mill, where the number of qualities and sheet sizes is very large. There are many stacks with different kinds of pulp and it is necessary to reach them all at any moment, and still maintain a 100% utilization of available floor space. The Skoghall warehouse permits a stack height of 50 ft., which is fully utilized.

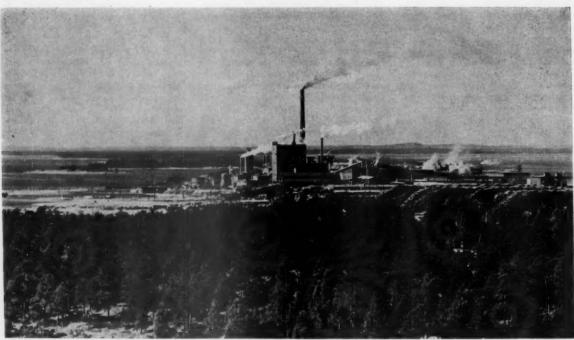
The overhead cranes give another considerable advantage if used for the direct loading into the ships and onto railroad cars. In order to reach out over the ship and down into the ship's hold the crane has to have a horizontal arm, preferably turning. Thus the crane can take one load from the stack in the warehouse and put it directly on board the ship. No workers are necessary on the quay alongside the ship.



ERIK SUNDBLAD, the author: "At Skoghall, we have chosen unusual methods for transportation and storing...."

The Problems:

How to grab the bales and the composition of the load were problems which had to be solved. The system to lift directly from warehouse stack into ship's hold requires heavy loads in the



GENERAL VIEW OF UDDEHOLMS MILLS AT SKOGHALL. A program of expansion here in both pulp and paper is being carried out—still not completed. Paper pulp for sale is being increased by 25,000 to 40,000 tons a year. Rayon pulp production totals 75,000 tons. Total pulp production will be 200,000 tons per year, the remainder going into conversion into paper grades. Kraft paper production by Uddeholms is being almost doubled from 45,000 to 85,000 tons (figures—metric).



crane, which is a comparatively slow transportation means. It is not practical to have more than one crane working into one cargo hold. At the Skoghall mills we have chosen the unit load of 4 metric tons (just about 9000 lbs); that is, 20 bales, each of 200 kilos (441 lbs.). This unit load suits us very well. It is fairly close to the upper limit of what can easily and conveniently be put down into the fairly small cargo holds of the ships which go up to Lake Vänern (largest ships about 2000 tons).

The bale grab that takes 20 bales at a time was invented and designed here.

The requirements were: (1) It must lift 20 bales so safely that no risk at all will exist for one or more bales to drop; (2) the grab must take the bales quickly and with a minimum of manual work; (3) it must require only very small openings between bales to be put into position for lifting; (4) the grab must be able to let loose its load automatically; that is, without help of ground personnel.

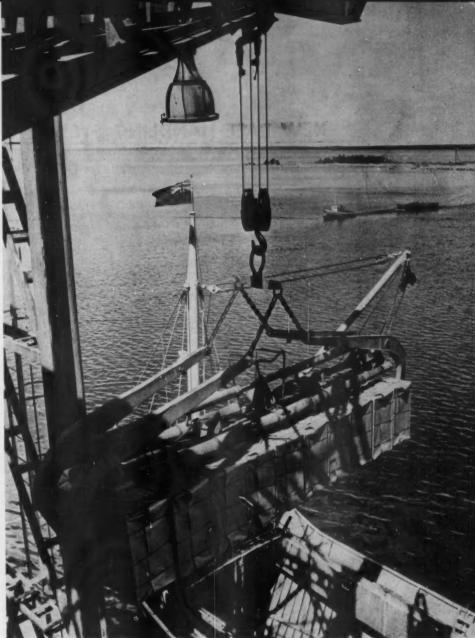
The Solution

After experiments with models and a half-size pilot unit we found that the bales should be handled standing end up. It is the most convenient way for the stevedore crews to handle the bales and to turn them over into their final place in the ship, where they usually lie flat. If the bales are handled with the large sides up and down instead (this method has also been tried), about 60% of the bales, or slightly more, can be put down directly into their final positions. But the remaining 40% which have to be moved then require rather heavy work. The best would be to have the bales standing end up in the ship too, but that is in most cases not yet permitted.

The bales in the grab are arranged in two lines of 10 standing bales each. The dimensions of the load thus are about 4 by 17 ft. This long, thin shape has been chosen for several reasons, one of the most important of which is that the grab can be turned so that half its length is under the ship's deck and thus reach out to or nearly out to the side walls of the ship's hold (see photo of ship loading). The manual work for the stevedores to distribute the bales in the hold is thus considerably reduced.

Construction of Grab

The construction of the grab is shown in the accompanying picture of ship loading. The bales are clamped between plates, which are put to the short vertical sides of the unit load. Between each pair of clamping plates there are 10 bales. The clamping force



NEW TYPE OF GRAB USED AT UDDEHOLMS—Handles 20 bales at once. Projecting A B, of Norrköping. Sweden, is manufacturer of this new type of grab, making them on license from Skoghall Mills of Uddeholms.

acts against the flat side of the sheets in the bale just as the balepress does. Thus the bales will not get any kind of deformation.

The clamping forces are obtained mechanically by transformation of the lifting force with levers. Each pair of plates carry 4500 lbs. and the lever proportions are 2:1. Thus the counterdirected clamping forces are about 4500 lbs.-forces each.

Between every two bales there hangs an endless chain coil running round and carried by one member of the frame construction of the grab. When the heave begins and the clamping force is developed, the chain coils are securely squeezed between the bales with the full clamping force for each chain. There are thus only two bales between two chains or be-

tween one chain and one clamping plate. The necessary friction coefficient for a bale to be lifted is thus only 0.1. In reality the friction coefficient has a value between 0.4 and 0.5.

Operation of Grab

The grab lifts the 20 bales quite securely even if only one of the four chains for each line of 10 bales is inserted between any two bales in the line. But the lift is not safe, and the clamping plates just about slip against the sides of the outer bales when no chains at all are inserted. The chains also prevent bending down the rows of 10 bales. The clamping plates have their centers at or just below the center line of the bales. The grab has been test-loaded by hanging extra bales in the bale wires under the 20

NEW BALE HANDLING SYSTEM

bales of the unit load. Eight extra bales have thus been lifted.

The long members of the liftingclamping levers can be locked in their down position by hooks. When these hooks have their grip, the grab is locked in open position and will not clamp when lifted. The hooks take their grip automatically when the grab is put down with a load in it. Thus the grab will let loose its load automatically without help from anyone but the crane-driver.

When a unit load is to be lifted, one man directs it over the unit load and controls its lowering into the right position. He then slightly separates some of the bales with a short flat iron bar and lets down the 8-chain coils. Then he unlocks the above-mentioned hooks by pulling a handle and the crane-driver heaves.

The total time for directing the grab, putting chain coils into position and lifting the load from the ground is about 45 seconds. If this waiting time for the crane is undesirable the crane can work with two grabs, changing each time it comes into the warehouse. Thus the work with the chains can be done when the crane runs with another load. The man in the warehouse also has time to assure that right bales are shipped by reading the numbers and marking them on a list.

Rayon pulp grades are delivered in a number of different sheet sizes. Since the weight of a bale is constant, the thickness of the bales varies. The grab can therefore be adjusted for different bale thickness by a center screw and by the telescopic frame. The grab rests on the bales on four pairs of rolls.

The bale grab has been in daily use

for all sulfate and part of the sulfite pulp at the Skoghall mills for a considerable time. It has been inspected and approved by the government authorities for labor safety and has been recommended in the government's gazette.

There is no doubt that loading of ships is more easily and safely done with the crane and grab than with the usual slinging and heaving with the ship's winches. The load is lowered calmly at a predetermined place without swinging and swaying. The bales are completely undamaged

Stacking in Warehouse

Of course, the bales must stand in unit loads of 20 all the time in the warehouse. This is automatically the case, since the same grab is used for stacking the bales in the warehouse. For taking a load, the grab requires a space of about 8 in. outside the short ends of the unit load of 2 by 10 bales. By turning some loads 90° and by taking the loads in a certain order the number of necessary 8-in. spaces can be reduced down to very few per layer of hales.

The stacks of bales in the warehouse is 14-16 bales high. No damage has been noticed on the bales in the bottom layer due to the pressure from the bales above, not even with so-called double bales containing two piles of small sheets per bale. We have at Skoghall, a modern bale-press which has a pressing force of 1000 tons, and it produces very neat, compressed bales.

The unit loads in a layer in a stack are usually turned at 90° in relation to the bales in the layers immediately below and over them. Thus a brick-like

binding is obtained. The stack is also bound and made more stable with old rubber transport bands which have been cut down to a width of 21/2 in., and to a small extent with thin scrap wood. It can be observed that a high stack of standing bales is more even and more stable than an equally high stack of lying bales. This is explained by the fact that the dimensions of pulp bales always are fixed and constant along the sheet edges, but the bale thickness can vary somewhat. One layer of standing bales is absolutely flat, whereas one layer of lying bales is quite uneven.

The grab has given us a unit load of 20 bales. It is always a good and economic principle to transport large unit loads and to put these unit loads together as early as possible in the transport chain. We build the unit load of 20 bales immediately after the bale-press. This could be done automatically but we have so far chosen to have a small clamp truck taking the bales from the conveyor after the wrapping (the bales then have been turned over to the end-up position automatically) and arranging the unit loads.

The man on the clamp truck also has other functions such as controlling and inspecting the bales and sorting out those failing for one reason or another. The unit loads are put together and wait for transport in a room directly adjacent to the pulp dryer room. The distance from there to the warehouse is about 550 yards.

The transport is done in daytime only and with a so-called straddle truck. At the beginning this truck handled the bales standing on a pallet (a so-called bolster). These bolsters have a fairly high initial cost and a considerable number of them is necessary for smooth operation. We have





TWO VIEWS SHOW HYSTER CLAMPING STRADDLE TRUCK. This truck never handles less than 20 bales at a time. In a long testing period, it has never broken a load from production line to the ship. What Uddeholms did was to take out the shoes and platforms (or bolsters) and add clamping devices instead.

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therefore equipped our two straddle trucks with a clamping unit each. This can be seen in pictures of the trucks accompanying this article.

It is quite probable that we have the only two combined clamping straddle trucks in the world so far. With them we have no need for bolsters since the truck takes the bales directly from the floor and there is no handling of empty bolsters. The unit load is clamped on its long sides by the truck and on its short sides by the grab. It is therefore very straight and compressed on the stacks in the warehouse. No bale damage from the clamping aggregate of the truck has been observed.

The straddle truck, 20 bales, 4 tons per tour, is driven by one man 8 hours per day only. Having 550 yards to run it easily manages 10-12 loads per hour, i. e. 45 tons/hr, i. e. 350-360 tons per day. It puts the bales on a space where the turning arm of the cranes can reach them.

Operation of Cranes

The cranes, we now have two, and plan for two more, are overhead travelling cranes with a turning arm hanging underneath. The span, i. e. the width of its part of the warehouse space, is 17 yards. Each crane operates its own part of the warehouse with its own rails and the rails of the two cranes are parallel and close side by side. The length of the rails is 65 yards in the warehouse and 25 yards over railroad tracks and to the quayside. The cranes thus have one opening each in the wall of the warehouse. This opening can be closed by a large iron curtain. The length of the turning arm is 39 ft. and the crane thus reaches over the whole of the hold of all ships coming here. The turning arms make the working spaces of the two cranes in the warehouse overlap by about 20 ft.

When stacking into the warehouse the crane--driver plus two men work, one on the floor and one on the stack. These three men stack on the average a little more than 17 loads per hour, i. e. stacking requires 0.044 manhours per ton. The men also make a plan of how they stack so that each unit load can be found again.

When loading out to a ship the same three men work, i. e. two on the stack plus the crane-driver. They then control the number of bales and the production number for each bale is checked against the shipping order, containing the numbers for the bales to be shipped. The capacity when loading out to ships is 70-80 tons/hr. i. e. 0.04 manhours per ton.

The stevedore crews can be much better utilized with this system. No men at the boat's winches and no sling-men on the quay are necessary. We usually have crews of seven men in the holds but of these six now are actually handling bales against four with the old system. Thus the capacity of the stevedore crews has been increased nearly 50%. In large ships we sometimes have stevedore crews of nine men out of which eight are in the hold. One crane feeds one large or two smaller crews.

Loading railroad flat cars we have one man in the warehouse and one man on the railroad car. The crane crew of three men thus is always the

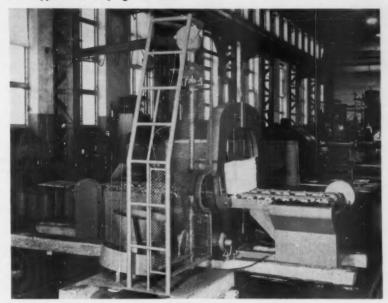
The utilization of the warehouse space and volume is 65 tons per 100 sq. ft. or 10 tons per 1000 cu. ft. total warehouse volume. These figures can be compared with those for a warehouse for truckhandling. Having 12

flat-lying bales high stacks and truckways so that 15-20 different qualities can be reached such a warehouse can hold about 20 tons per 100 sq. ft. and 6 to 7 tons per 1000 cu. ft. total volume. Thus a high warehouse with cranes will utilize available floor space about three times better and available total volume about 50% better than a warehouse built for truck-handling.

Advantages

The number of man-hours per ton of pulp is about equal for crane and for trucks, both for stacking and for loading out to ships or railroad cars. The stowing is cheaper though, if cranes are used. It is also a great advantage that the quay is free from people and goods when loading, especially so if there are railroad tracks on the quay.

New Type of Wire Tying Machine



In use at Skoghall for binding of pulp bales, this machine is built by A/B Sundsvalls Verkstäder, Sundsvall. It is equipped with:

Two transport tables with driven rollers, which are synchronized with the wire tying machine for automatic transport and turning of the bales and tying of the wires. The position of the wires on the bales can be adjusted.

One turning table, built into one of the transport tables. This turning table automatically lifts and turns the bale 90° after two or three wires are applied. Then the bale goes back to the tying machine for the application of the remaining wires.

One double acting press cylinder with press table for holding the bale during the tying operation.

The turning table and press cylinder are pneumatically operated at an air pressure of about 6 kg/cm².

Wire stand, complete with holder for the wire bundle.

The transport of the blades through the machine is fully automatic with the bales acting on switches which actuate wire application and tying. This can also be done by manual operation.

The machine has four electric motors (one motor 3.4 hp and the other three 1.4 hp each). Air consumption is about 200 liters free air per minute.

Machine, type SV-B10 at Skoghall has capacity for about 70 bales per hour, with 4 wires on each bale, two in each direction. Bales are 1050 x 1050 mm x 600 mm height.



SWEEPING VIEW OF BUCKEYE MILL shows kilns and powerhouse at left, water purification at right and digesters and machine room in the background.

Buckeye Doubles Up in Florida

Unique features of expansion "image mill" include amazing 95% chemical recovery, special 7-stage bleaching, double pulp screening

By WILLIAM F. DIEHL Jr.
PULP & PAPER Southern Editor

 Buckeye Cellulose Corp. is now producing in double-time at its mill here. In one \$20,000,000 thrust it has doubled the capacity of its five-yearold Foley operation. Current capacity: 200,000 tons of dissolving pulp or 266,000 tons of paper pulp.

A whopping 95% chemical recovery, seven-stage bleaching and double screening are special features.

One secret to the present operation is a semi-independent tandem operation by which the new expansion is integrated with the original mill. Both mills—the new expansion actually being a new mill—are linked by departments, can be operated independently of each other at any time. They can run one grade or different pulps

depending on customer demands.

With the start-up of its new operation at Foley, Buckeye has boosted its production maximum to more than 315,000 tons a year. Its plant in Memphis, Tenn., produces some 115,000 tons annually from cotton linters, considered a waste product until it was found useful for making gunpowder during World War I. At Foley, which now represents a \$50,000,000 investment and was originally built because of a shortage in cotton linters, hardwood and softwood dissolving pulps are made as well as softwood paper pulp.

Buckeye, a wholly-owned subsidiary of Procter & Gamble, began its history as Buckeye Cotton Oil Co., which P&G started to provide with cottonseed oil for its products. Subsequent research centered on developing commercial uses for the shortfibered linters that cling to cottonseed after ginning.

Its 43,000-sq. ft. Memphis technical building is the largest industrial lab in the mid-South and the most complete cellulose research center in the nation. Among products developed or investigated here: skinless frankfurters, writing papers, camera film, cellophane, tire cords, rocket fuel. One of the newest products was an extremely high alpha cellulose woodpulp used in tires.

Wood for the Foley Mill

For a look at Buckeye Cellulose's exciting forestry plans for its Florida woodlands, PULP & PAPER's Southern editor, William F. Diehl Jr., visited the far reaches of the firm's acreage. For his report turn to page 124.

How Buckeye Gets 95% Chemical Recovery

Buckeye's research division helped immeasurably to develop the unique chemical recovery system at Foley. Using a standard Babcock & Wilcox heat and chemical recovery unit, coupled with a Venturi scrubber-separator, both recirculated (65%) and makeup (50%) liquor are sprayed into twin scrubber sections through separate headers. This combination makes possible an unusually high 90% cleaning efficiency guarantee, which is expected to exceed 95% recovery in normal operation.

The 550-ton B&W recovery boiler has a rated steam output of 285,000 lbs. per hr. at 600 psig and 750°F and stands 125 ft. high. It can burn 1,650,000 lbs. of black liquor solids with a 6,500 btu-per lb. heating value, which corresponds to about 218,000 gal. of black liquor a day.

Because of its size, engineers had to divide the cyclone separator section into two units, each 16 ft. in dia. and 40 ft. high. This necessitated duplicate Venturi scrubbers, last pass hoppers and two-sided shot cleaning. A 30- to 35-in. scrubber differential and 3-in. cyclone differential are used. The wetted portion of the system, from scrubbers through separators, is 304 stainless. In addition, stainless was specified on all black liquor

pumps and piping because digesting of high-purity cellulose produces corrosive liquors. Corten is used in semiwet areas.

Because of heavy allowances for fouling and extreme volumes and gas differentials, the fan also was split into two units: an American Blower Corp. 835-rpm induced draft fan, two-stage tandem with 304 stainless rotors and %-in. Corten plate housings designed for maximum rating of 545,000 lbs. per hr. flue gas at 200°F and 44.4-in. static pressure. It is driven by a huge 2613-hp nine-stage General Electric back pressure type steam turbine. The horizontal economizer and vertical gas heater ahe shot-cleaned.

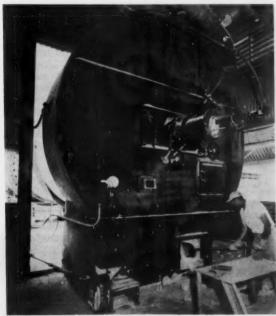
Exhaust steam from the 10,000-kw turbogenerator and from the induced draft fan turbine supplies the 50-psi header that serves the new Pulp Drying dept. It also ties into the old 50-psi header serving the original Pulp Drying dept. and both bleach plants. New pressure-reducing and desuperheating stations supply the makeup for the 50-psi header to the new black liquor evaporators and also for the extended 150-psi steam header of the digester.

Rust Engineering Co. erected the brick-lined 225-ft. stack that has Pennsalt Furan resin lining in the salt cake storage bin provided in its base. Black liquor recirculating pumps are Allis-Chalmers, makeup pumps are Goulds, and the hopper sluice and fuel pumps are Worthington.

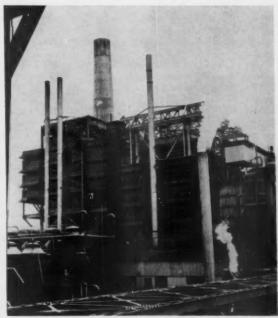
An oil-fired Allis-Chalmers lime kiln duplicates the original one. It is served by extensions from the old feed and firing houses and has two Bird Machine lime slurry centrifuges in place of the original cylindrical vacuum filters, one of which is used to dewater sludge from the cold lime softener, permitting recovery of lime ordinarily lost to the sewer. Lime yield will be of sufficient quantity and quality to replace about 50 tons a day of purchased lime; plant may eventually gross about \$1,000 a month from sale of surplus lime.

The new kiln is also equipped with a variable-speed induced draft fan driven through a Dynamatic coupling, which is remotely adjusted from the firing panel to maintain proper combustion conditions continuously. It is monitored by a Bailey oxygen analyzer.

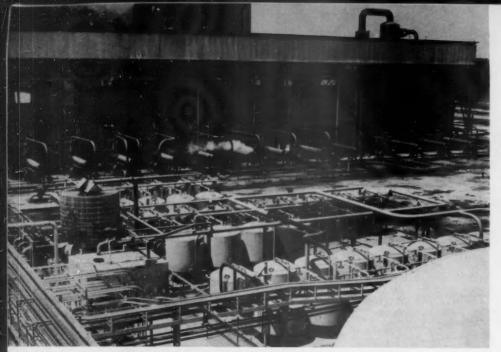
Slakers, clarifiers, mud washers and storage agitators were all supplied by Dorr Oliver, and the five-effect evaporators are Chicago Bridge & Iron, with Worthington pumps.



THIS IS BUSINESS END of big, new Allis-Chalmers kiln. Oil-fired, it is served by extensions from old feed and firing houses, is equipped with variable-speed induced air fan.



NEW RECOVERY BOILER IS 11 STORIES HIGH, is taller than old unit standing beside it. The 550-ton B&W unit has rating of 285,000 pph. at 600 psig and 750°F.



MODIFIED KRAFT COOK WAS DEVELOPED by Buckeye research, includes prehydrolysis of chips in 4,150-cu. ft. CB&I digesters. Water treatment is in foreground.

. . . AT BUCKEYE

Cooking and Bleaching are Special

Chips are cooked in two stages by a modified kraft process developed by Buckeye research. Five new 4,150-cu. ft. Chicago Bridge & Iron stainless steel digesters with Downingtown indirect solution heaters and Goulds solution circulating pumps are used.

The first stage is a prehydrolysis in which chips are steamed under pressure with dilute acid. The main purpose is hydrolysis of non-cellulosic carbohydrates. It also facilitates a rapid penetration of cooking liquor during the second stage.

The second stage is a conventional alkaline cook to dissolve lignin and low d.p. carbohydrates. Cooking liquors are circulated, and the cook automatically controlled by Foxboro instruments. One digester is arranged for swing operation and the other four permanently piped to a new two-charge Hammond Iron Works blow tank with entrainment separator. Each of the tanks has a holding capacity of two and one half cooks. The Chattanooga Boiler & Tank Co. heat accumulator tank has an internal direct contact condenser and a Goulds accumulator condenser water pump. It perates in cooperation with two Struthers-Wells heat exchangers.

Chips Are Screened Twice

Chips get a special screening treatment, twice over—and not lightly. Stock is controlled through the first screening by a Foxboro magnetic flowmeter. Three Bird Machine Jonsson knotter screens get rid of fiber bundles and knots. A Sandy Hill Kamyr knotter pump is used. From this initial screening, stock is washed in a three-stage Impco brownstock countercurrent vacuum washer system. Then chips are pumped to a second screen system.

The second system is new and is composed of six primary and two secondary Impeo Lindblad vibrating screens, one Impco flat screen and four Impco centrifugal screens, all designed to remove even the thinnest shives. After screening, pulp is dewatered in an Impco valveless decker and then goes to two 50-ton high-density storage towers. White water and screen stock mix tanks were built by Chemical Linings, as was the agitated blend chest where stock for bleaching is adjusted. Starting with deckers, all process equipment and flow lines are specially lined with stainless steel to prevent contamination.

Bleach is Seven Stages

Multiple bleaching stages, seven in all, are used to permit better control. The exact number of stages and their position in the process are varied to give specific qualities to different pulp types. Temperature, concentration and pH of all bleaching liquors are controlled within narrow limits to maintain uniformity of pulp. Both viscosity and brightness are checked at several points during the process via a special vacuum tube system between the bleaching floor and the plant lab for rapid transmission of pulp samples

and test results.

The seven normal bleaching stages used are chlorination, hot sodium hydroxide, hypo, hypo, chlorine dioxide, hot caustic, chlorine dioxide. Where pulp is not contained in closed vessels the bleach building is pressurized with filtered air to prevent contamination.

Bleaching is carried out in eight tile-lined towers, two of which are low-density upflow tanks, the other six downflow high-density towers. The tanks were built by Graver Tank & Mfg. Co. with linings by Chemical Linings. Sandy Hill provided the stock pumps, while the high-density water pumps were provided by Buffalo Pumps. Bleach washers are all 9-ft. 6-in. stainless steel Impco vacuum washers with 14-ft. face. J. O. Ross supplied the washer-hoods and ventilated motor control centers.

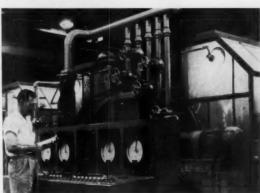
Air for Instruments

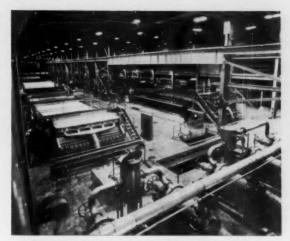
Increased factory compressed air requirements come from the new 100-psi Worthington horizontal 450-cfm single-cylinder, single-stage double-acting air compressor, driven by a 100-hp motor.

In the process departments, where Foxboro instruments are generally used, two 100-psi 160-cfm Gardner-Denver single-cylinder, single-stage, double-acting non-lubricated carbon ring type air compressors are driven by 40-hp motors. Remote flow recorders, some temperature recorders, gas analyzers, computing relays and manual loading stations, as well as instrumentation for the recovery boiler, were provided by Bailey Meter. The new boiler and black liquor evaporator instruments are equipped with a 90-psi 180-cfm Worthington air compressor with a 40-hp Worthington steam turbine.

Multipoint temperature recorders were supplied by Minneapolis Honeywell, and the pneumatic temperature transmitters came from Moore Products. In-line consistency transmitters and standard control valves were equipped by DeZurik with Bailey positioners, while Continental Equipment installed the butterfly valves.

FEATURE OF BLEACH PLANT is control panel that is part of automatic system; washers behind.





SIDE BY SIDE, OLD AND NEW machines are located in expanded machine room. New dryer has 100-ft. wire.



PULP IS DRIED through two 180-in. Sandy Hill Fourdrinier machines, after being cleaned in Bauer and Vortrap systems.

Drying, Finishing are in Line

Key to the new machine room is the 180-in. Sandy Hill pulp drying machine, located adjacent to the first Fourdrinier machine in the expanded drying room. Pulp flowing to the machine is cleaned through two 36-in. Bauer Bros. Magna cleaners. From there it goes through a Nichols Freeman Vortrap system. A Sandy Hill valveless decker is used to thicken pulp to the correct consistency, after which it is pumped through a Bertrams flow distributor to the machine.

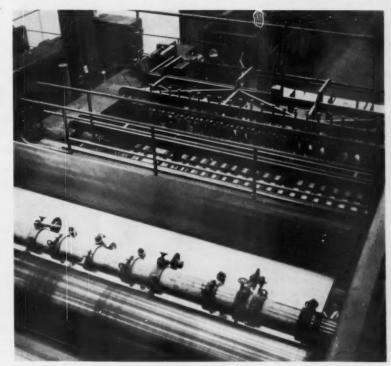
The Fourdrinier pulp dryer has a 100-ft. long conventional wire followed by a suction couch, first suction wet press, a four-drum pre-dryer section, second suction wet press and a smoothing press. The first dryer section contains 48 dryers, followed by a breaker stack. A 13-dryer second section follows, after which the three-drum air drying section and draw rolls are located. Each section is equipped with non-oscillating doctors on the first five dryers and last top roll of each section. The reel is a Roll Master.

A Sandy Hill selective line shaft driven by a 400-hp dc Westinghouse motor powers the machine. The hood and air system were provided by J. O. Ross. The four Nash Hytor vacuum pumps are powered by a 1,000-hp Allis-Chalmers synchronous motor.

Storage facilities have been added to existing storage space for 1,400 tons of jumbo rolls. In addition to 80,000 additional sq. ft. of storage space, loading facilities for eight boxcars were also added.

Sheets are manufactured adjacent to the machine room by a Lambs-Gray

Harbor backstand, cutter and layboy with a roll winder and bale conveyor. A Washington Iron Works 2,600-ton hydraulic press uses Tennant automatic Twist Lock wire tying machines. The conveyors can be set either for continuous operation with bales fed from the tying machines directly to the stacker, or they can be set to accumulate bales and allow intermittent operation of the stacker. Cut sheets from the original layboy can be interfed with the new finishing line as can sheets from No. 2.



SLICING PULP INTO SHEETS, Lamb-Grays Harbor layboy and cutter is located behind and adjacent to Fourdinier machines.

... AT BUCKEYE

How Power, Water were Increased

To cover the new expansion at Foley, Buckeye's total plant capacity for power generation has been increased to 26,600 kw at 85% P.F. Most of this increased power comes from a 10,000kw General Electric noncondensing turbine-driven generator. Two new 12.47-kv feeders have been added and four others extended, making a total of nine in the plant. In addition, there are 15 new Allis-Chalmers substations, which boost the connected capacity to 15,000 kva. In all, there are now 35 substations with a total connected capacity of 35,500 kva. All but three of the new stations are in ventilated control rooms. Three of these substations are 2300-v type for motor control on units above 200 hp.

Square D motor control centers are used throughout the mill and are in ventilated control rooms for the most part. Squirrel cage induction type motors are used generally. Westinghouse 480-v units are supplied for motors of 200-hp and below. Allis-Chalmers supplied the 2,300-v units for 250 hp and above. Exceptions are the Fourdrinier drive, vacuum pump drives and other specialty motors.

Where Water Comes From

Some 26,000,000 gals. of water per day are provided to the mill from three new wells drilled by Layne-Atlantic, which also supplied the pumps. No. 1 well, located inside the plant property, has been abandoned as a full-time, full-capacity well, is now used as a portable water supply.

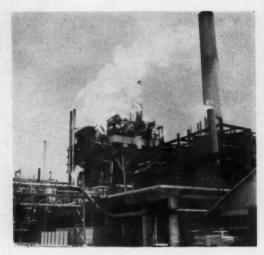
Water is stored in a 2,000,000-gal. wirewound prestressed concrete reservoir that duplicates the original. It was erected by Crom. The softener internals are by Graver. Included in the softening system are three pneu-matically-paced Omega continuous weighing feeders, replacing the inter-

The fully-integrated water softening system provides a lime yield of sufficient quality and quantity to replace about 50 tons a day of purchased lime. It saves up to about \$5,000 a month. It completely eliminates sludge disposal problems, including the maintenance lagoon area.

The plant uses a Crown cold lime softening process that produces about 100 tons of calcium carbonate a day. It removes 60% of the magnesium and 60% of the calcium and only sacrifices 20% of the calcium. The three-stage system includes:

Carbonation of sludge with lime

POWERHOUSE CON-TAINS new 10,000-kw General Electric generator, which pushes total output to 26,600 kw at 85% P.F.



kiln gas-dissolves magnesium compounds; dewatering and purification of sludge by Bird filter-removes impurities from water; calcining recovered sludge in kiln and lime mud from causticizer.

Also included in the water system

are nine 10-ft. dia. Belco sand and gravel pressure fillers, 10-ft. Graver acid cation exchange unit, three new 10-ft. Graver sodium cation exchange units and two 10-ft. Graver anion exchangers. These gave necessary capacity to ion exchange plant.

Men Important to Foley Operations . . .









Morgens Lingle Alderks

Howard J. Morgens is president of Procter & Gamble; Walter Lingle Jr., exec. vice pres.; Orto Alderks, Buckeye vice pres. for research; Paul K. Honey, vice pres. and mgr. of Buckeye's Cellulose & Specialties div.









G. A. Tougas, mgr. of Buckeye's Florida operations; O. L. Wakeman, mill mgr. at Foley; T. M. Courtney, wood procurement mgr.; J. M. Williams, industrial relations mgr.

"Boiled Macaroni" Versus

"Fuzzy Fibrillation" at Conference

International experts defend rival concepts of fiber bonding in TAPPI

Annual Testing Meeting on U.S.A.'s Pacific Coast

How to increase fundamental understanding of fibers—their characteristics and functions—was undertaken by a panel of international technical leaders during TAPPI's 10th Testing Conference, held this year in Portland, Ore., U.S.A.

Officiating as moderator, R. P. Whitney, dean of The Institute of Paper Chemistry, Appleton, Wisconsin, led off the learned presentation by establishing "ground rules" and specifying minimal subject "bases" to be touched. He subsequently proceeded to keep the discussion balanced by deflecting inquiries to supporters of the various concepts—some of which were originated by members of the panel.

J. A. Van Den Akker, of the Institute staff, expressed concern for the need of additional basic information concerning individual fibers. He pointed out that "fiber" is a "structural system." Although length and cross-section dimensions have long been recognized and studied, there is need for more understanding of structure and characteristics. Cross-sectional make-up of fibers-a significant factor as far as formability is concerned-is too little understood. He also expressed need for knowledge about stress-strain relationships of fibers in a sheet, about fiber bonding and lateral compression.

W. B. Campbell, holder of the "hy-

drogen bonding" concept and formerly head of the Pulp & Paper Institute of Canada, now consultant at Montreal, selected "stretch" as the paper factor qualifying for concerted study and development. He emphasized that paper is a "stretcher," undergoing considerable deformation and bond breaking while approaching the breaking load. He pointed out that the stretching imposed by some papermaking processes (winding, calendering) removes stretch from the product. This stretch is eliminated before the paper reaches the printing machine. He attributes break during printing to loss of the cushioning stretch.

Participation by L. S. Nordman, of The Finnish Pulp & Paper Research Institute, Helsinki, Finland, concerned measuring the bonded areas of fibers by light-scattering methods—measuring the free area as distinguished from the bonded area. Good correlation was noted between light scattering and energy as determined from stress-strain diagrams.

The bonded area of the fibers, according to Dr. Nordman, equals the total available bonding area minus the free area. Since the free area does not seem to change by beating or refining, he concludes the bonded area is not changed by beating.

changed by beating.

James d'A. Clark, technical consultant of Victoria, B.C., Canada, set up

the "boiled macaroni vs. fuzzy fibrillation" thesis. He, a "fuzzy fibrillation" advocate, attributes superior in-sheet bonding strength to molecular fiber fuzz obtained by proper beater action. He gives little credence to the contention that fibers swell during the beat-

Moist pulp is already swollen before beating, so there is slight opportunity to increase swelling or flexibility at this stage. The main beneficial bonding effect from beating, according to Dr. Clark, concerns segregation of individual fibers, opening the surface of the fibers, and effecting microscopic (probably molecular) fibrilla-

Dr. Whitney, taking a position in between the "boiled" and "fuzzy" extremes—as did most of the panelists, attributed significance to both swelling and fibrillation. Dr. Van Den Akker indicated a conviction the effects of fiber swelling has been over-rated, that wet fiber flexibility and fiber fuzz are important bonding factors.

Of the participants, Dr. Campbell seemed most inclined to support the "macaroni" concept. He says there is swelling during beating—mainly taking place early in the process then tapering off to continue at a reduced rate. And, back to his original thesis, water is hydrogen bonded to every available surface.









Whitney

Clark

Van den Akker

. Nordman

Camphe

PULPING SESSIONS of 10th Testing Conference (TAPPI) held in Portland, Ore., U.S.A., features symposuim by international researchers: R. P. Whitney, Institute of Paper Chemistry, Appleton, Wis., keeps "Boiled Macaroni vs. Fuzzy Fibrillation" bonding dissertation in bounds as Moderator; James D'A. Clark, famerly of Paper Institute staff and now consultant at Victoria, B.C. makes quick reference to notes in defending "Fuzzy Fiber"

concept; J. A. VAN DEN AKKER, Paper Institute, Appleton, held to in-between position but showed leaning toward side of Fibrillationists; L. S. NORDMAN, of The Finnish Pulp & Paper Institute, Helsingfors, Fin., contends that free area not changed by beating-refining; W. B. CAMPBELL, hydrogen bonding crusader now consultant at Montreal, Que. and formerly of Pulp & Paper Institute of Canada, gave reserved support to "Macaroni" theory.

Calibrating-Grinding of Laboratory Beaters . . . Effects on Beater of Ionized Water . . . Pulp Strength Evaluation . . . A New Refiner

• In opening this year's Testing Conference pulping section, Moderator H. A. Smith, technical director of Chillicothe, O., Div. of Mead Corp., emphasized the importance of continuously improving pulp testing methods. Tighter specifications, increased costs, product development and sharper competition have made it essential.

Beater Tackle Touch-Up Method

Two methods of calibrating Valley laboratory beaters were evaluated. Frank Dinger, pulp testing supervisor of Puget Sound Pulp & Timber Co., Bellingham, Wash., reported on the 80-grit touch-up method—a process which has been referred to as the "Dinger touch-up method." The result of investigations to achieve a rapidly reproducible method for maintaining calibration of Valley laboratory beaters, this technique can be rapidly applied and results in minimum repair and maintenance.

Tackle wear results primarily from grinding, only slightly from the touchup process. Experience in using the 80-grit technique shows that beaters so processed can be used for testing various pulps in addition to Puget Pulp's softwood sulfite. Mr. Dinger reported the beaters (three used in the laboratory) give dependable results from kraft pulp—using sulfite as a reference pulp. Reproducibility, even when alternating runs on different type pulps, was termed "very good."

Keeping the Puget Sound beaters in uniform calibration has been simplified by applying the 80-grit touch-up technique which basically consists of grinding-in the beater with a pulp and water slurry containing silicon carbide carborundum. Tackle surface is periodically conditioned by 80-grit touch-ups, the frequency and amount governed by beating time for the standard pulp. Standard for beating to a 250 freeness is between 38 and 45 minutes. A beater in daily use gives two years trouble-free service on a schedule calling for 500 to 700 tests annually. Four to five years service is obtained from a set of bars and bed-

Another System for Beaters

H. V. Poole, of Powell River Co., B.C., Canada, presented another system for conditioning Valley laboratory beaters. It, too, the result of work undertaken to find an effective, rapid conditioning procedure. The process consists of grinding with 80-grit emery and conditioning with 400-grit, the abrasive used in a pulp medium in each case. For minimum fiber cutting and good strength development, the bedplate lead should be ½2 to ½6 in., the wooden fillers recessed ½2 in. below the level of the bars.

"The bedplate must be ground to a radius of curvature equal to the roll radius plus the gap sustained by the pulp normally tested in the beater," Mr. Poole reported. A beater ground for pulp of one gap-sustained quality will not effectively develop strength in a pulp of radically different gap qualities.

Differing from Mr. Dinger, Mr. Poole's experience indicates it may not be possible to standardize beater conditions for different types of pulps.

Arthur W. Martin, of Australian Paper Manufacturers Ltd., raised the point (in question-answer period) of the reliability of results from laboratory beater runs made subsequent to changing from one type of pulp to another. He said that, after changing from softwood kraft to hardwood kraft pulp on a commercial basis, beating is not really stabilized in less than a full shift operation; occasionally two.

Effects of Electrolytes

Concerning the effects of electrolytes in Valley beater tests, Berwyn B. Thomas, Olympic Research Div. of Rayonier Inc., Shelton, Wash., finds that ionic variations in water can be significant. The study, undertaken because Rayonier's mills are widely separated, indicates that different beating action occurs when using deionized water.

When a mill's water supply is affected by seasonal change, this could be significant in contributing to the need for longer beating periods at certain times of year.

Test beater runs were made using standard pine kraft pulp with various ionic salts added. Monovalent salts increased beating time slightly; polyvalent cations increased beating time 35 to 50% in reaching 400 freeness. Dr. Thomas reported that comparisons at constant freeness between pulps of various mills may be distorted by water differences. He suggests using constant time comparisons, or deionized water, for test beating of pulps.

James L. McAndie, development



Valseth Smith

C. S. Walseth, gen. chairman of conference and tech. director of Grays Harbor Pulp Div., Weyerhaeuser Co., confers with H. A. Smith, tech. director Chillicothe Div., Mead Corp., presiding as chairman of pulping session.



Dinger Poole Thomas

Presented pulp-session papers on aspects of beaters & beating: Frank Dinger, pulp testing supervisor, Puget Sound Pulp & Timber Co., H. V. Poole, pulp & paper control supervisor, Powell River Co., B. B. Thomas, research chemist, Olympic Research Div., Rayonier, Inc.



McAndie Caskey

Morden Machines Co. men active at conference were J. L. McAnde, development engineer, who presented paper on results of new 60 hp. Stock-Maker (bronze, iron rotors of this unit shown in foreground), F. E. Caskey, mgr., technical sales and services, local arrangements chairman for entire conference.

engineer of Morden Machines Co., Portland, Ore., revealed that "new horizons" for refiner testing have been opened up in the laboratory by incorporating Morden's newly developed 60 hp. Stock-Maker as a component of the firm's stock-preparation pilot plant. The small conical refiner, in which several design improvements were incorporated, replaces a 200 hp. Stock-Maker.

Stedies with the new unit operating in conjunction with a pilot size Slush-Maker points up the significance of tackle condition. This, Mr. McAndie stated, has "a tremendous effect on results of refining." Refiner power settings have considerable effect on

the refining results—"especially when the maximum load-carrying ability of the pulp is reached." Low-power runs result in considerably improved efficiency and burst, slightly better tear. High rotor speeds show best strength characteristics and efficiency; low consistency makes for better burst but at some sacrifice of tear.

California Group Launches Plans For 1960 PIMA Convention in San Francisco



Chapman Perrin Bolger Beardsley Hansen

Waiting Room No. 7, International Brotherhood of Migratory Peddlers, met in San Mateo, Calif., last month to set in motion the duties outlined by the planning group for the annual convention of the Paper Industry Management Association (formerly the A.P.&P.M. Supts. Assn.) in San Francisco June 6-9, 1960.

Waiting Room No. 7, new, but enthusiastic, elected officers for the coming year: E. W. Beardsley, Corn Products Sales Co., president; Walter Brandt, General Dyestuff Co., first vice-president; A. C. Perrin, Reliance Electric & Engineering Co., second vice-president; Charles Chapman, Hercules Powder Co., secretary; and Harold Hansen, General Chemical Div., Allied Chemical Corp., treasurer.

General chairman of the convention preparation committee will be Mr. Beardsley, assisted by Hugh Bolger, Cameron Machine Co., outgoing president of Waiting Room No. 7. Mr. Brandt, assisted by L. K. Smith (PULP & PAPER) Miller Freeman Publications, Inc., arrangements; H. A. Harvey, Penick & Ford, housing, assisted by J. B. Critchlow, Reliance Electric & Engineering Co.; Mrs. Hugh Bolger and Al Gedman, Huyck Felt Co., cochairmen, ladies committee, assisted by Forrest Rhoads, The Flox Co.; Walter Christiani, Dorr-Oliver Co., and whoever will be chairman of the Bay Area group of PIMA after its election this fall, assisted by Lowell Brown, Albany Felt Co.; Mr. Hansen, registration, assisted by L. G. Maclise, Dow Chemical Co.; T. A. Bailey, Corn Products Sales Co., transportation; Mr. Perrin, wake-'em-up breakfast, assisted by Maurice McCord, General Dyestuff Co., also cooperating, the Northwest IBMP waiting rooms; and Charles Chapman, Hercules Powder Co., entertainment.

Talks by Editor Reveal Increasing Interest in Russia

Albert W. Wilson, editor of PULP & PAPER, has been making a series of talks to pulp and paper industry groups and affiliated organizations in the past several weeks on his 100-days trip through 13 European countries, including Russia. He recently addressed five groups in the Midwest and Far West.

He reports that about 90% of the questions asked after each talk were concerned with just one of these countries—Russia—indicating an increasing desire for factual information about its people and its pulp and paper industry. His talk described interviews, experiences with "the man in the street" (he was free to go anywhere he wished alone) and with State Planning Commission leaders, and visits to the Central Pulp & Paper Research Institute and a paper mill in Russia.

1960 Annual Meeting Set For Canadian Industry

The 1960 annual meeting of the Canadian Pulp and Paper Association will take place in Montreal Jan. 26-29. The open meetings of the Technical Section will be held at the Queen Elizabeth Hotel. Sessions will begin at 2:00 p.m. Jan. 26 and end at noon Jan. 29. Registration will open at 9:00 a.m. Tuesday the 26th. A products display will be held concurrently with the meeting.

Requests for accommodation should be addressed to the hotel. Anyone wishing to present a paper should contact Douglas Jones, executive secy., Tech. Section, Canadian Pulp and Paper Assn., 2280 Sun Life Bdg., Montreal 2, P.Q., Canada.

Flintkote Files First Patent from Hawaii

Honolulu . . . The first patent application from the new 50th state of U.S.A.—Hawaii—was filed by a subsidiary of Flintkote Co., Patent & Licensing Corp. It covered a new method of utilizing bagasse in the manufacture of hardboard.

Developed by Korea native, Sung H. Cha, the method is designed to reduce production costs and result in better board. Mr. Cha is research and quality control director at Flintkote's Hilo plant, third largest industrial manufacturer in the Islands.

Extensible Paper Now Made in Canada

For the first time in Canada, the new extensible kraft paper, trademarked Clupak is being manufactured at the East Angus, Que., mill of St. Lawrence Corp. Ltd. It will be marketed under the St. Lawrence Bulldog trademark in conjunction with Clupak trademark. The paper's stretch or extensibility absorbs energy on impact to resist rips, tears and punctures.

Sanford L. Cluett, originator of the shrink resistant sanforized process in textiles, was joint inventor of Clupak in cooperation with West Virginia Pulp & Paper Co., which first made it at Charleston, S.C.

Contributing to Community Relations

. . . is a prime objective of modern management, which must recognize the difference between informing and persuading.

By M. J. SCHULENBURG Director of Public Relations Kimberly-Clark Corp. Neenah, Wis.

The vitality of good relations is stressed in this address which was presented by Mr. Schulenburg at the Second Annual Community Relations Conference sponsored by the Ohio Paper Industry. The meeting was staged at the Miami University Center, Oxford, Ohio.

• Our industry deserves congratulations on several points. It has been a permanent resident in its communities for many years, and it has emerged with a record that can stand inspection. It has been a dependable neighbor in good times and bad. It has done a good job and can build its community relations programs on performance.

In this work, performance is the first and great requirement. We must have something to build upon, and then we must do the building.

Operating management has been working at this very basic aspect of community relations. Through its work of managing the business, it helps to make the record. It has done this without opening its mouth. It has the further job of helping others—including the community—to know that record. This then brings us to the first important preliminary conclusion: Management must open its mouth. In many ways this has been said before, and it is still being said because results to date certainly have been sportly.

It is important for us to recognize why progress has been slow. An obvious reason is this: Management already is 100% busy. This is the first problem. It raises some questions: Is management going to stop operating? Is it going to set aside its day-to-day responsibility? Of course not. So what? So we must do an organizing job to meet this situation.

Fortunately, management does recognize the importance of the job and will walk the additional mile. But, the job is big, and the answer is to spread the work. We can only spread the work if we consider operating management as anyone from the chairman of the board to the last unit leader.

There is another good reason for such an approach: No truly successful long-term community relations program begins without effective communication with employes; it takes all of operating management, including front-line supervision, to do this communications job to the extent that is necessary if we are going to get worth-while penetration.

Operating management then becomes a principal channel from and through company to community. At the moment it is a channel in name only. This channel is no good if dry. Having developed a channel of communication, operating management must then proceed to fill the channel.

A case history of one company approach may help to keep attention on the "how" of the job. The company was growing fast, and a normal result was that top management, to an extent, tended to grow away from other levels. These men, for instance, were not being seen in the various plants and units as they had been, and they were missed.

"We'll Take it from There"

The situation was brought to the attention of top management, and the reaction was healthy. Executives wanted to meet the problem and to do so devised a program whereby employe relations would be spread out among the higher echelon in the company. They wanted to know: "Where shall we be and to whom should we



M. J. SCHULEN-BURG: "Our approach is to provide factual information and trust people to take it from there."

talk? On what dates? Give us that kind of organization and information. We'll take it from there."

On such a beginning developed a program for the first year that was wrapped up in a one-page memo to a handful of people at the top.

Kimberly-Clark's current Speaker's Bureau booklet is still not a grand thing, but it has grown from our first effort to organize. The number of management participants has grown. The booklet now contains 28 pages and the names of more than 50 corporation officers, department heads and staff specialists, etc. It contains 50 subjects that are available to meet internal information needs. It is a key element in communication effort. Even though it needs much more improvement, it is a type of organizational effort we must put out if we are to answer the question, "How can operating management contribute to community relations?"

"What Shall We Talk About?"

There is a good general answer to this question that can be phrased in another question, "What are your problems?" Put your finger on the problems that matter to you, and you have a ready-made list of subjects.

In varying degree, the majority of subjects have application for the company internally and for the community.

1. Stream Pollution

The first subject that comes to mind—stream pollution—has 100% interest no matter where you sit. This is a major item, for the subject not only generates strong feelings, but it is also

one that can have serious aspects for the financial health of an industry. The pulp and paper industry has given this problem much fundamental study, and a great deal of progress has resulted. A good job of abatement and improvement is being done, but how about the problem of the community of public understanding?

Kimberly-Clark has spearheaded more than one attempt to get this progress story to the public. But, you can't do any kind of job, particularly in a pulp and paper area, unless your own people understand what it's about. To help do this we have operating staff specialists available to talk

on the subject, "Clean Water: Kimberly-Clark's Part in Reducing Pollution."

This subject aptly points up the community aspects of a speakers' bureau. These same men speak internally, and the information they give goes to the community through K-C people. However, this is a subject that also requires formal appearance before outside groups. And how often have companies passed up such invitations for one reason or another—but mostly because no one was prepared to take on a difficult assignment?

2. The Railroads

A second important subject, listed as "Kimberly-Clark and the Railroads," has a different connotation.

Like other paper and pulp people, we are heavy users of rail transportation. In many of our communities we are far and away the biggest customer of the railroads, and we would be in an impossible situation without them. Obviously, their problems then become our problems. So, we are trying to take more than passing interest. Two top traffic department men have made themselves available to both employe and community groups to tell about the current problems of railroaders and what these mean to the corporation and the community. These men describe the interdependence of the corporation (and the entire industry) and the railroads, and they discuss the corrective measures being taken or suggested by rail and government authorities.

We may never show any direct dollar return on this work, but we hope there is some good for us in the "statesmanship" aspects of helping to carry the fight for a better break for this backbone industry of U.S. transportation.

3. Planning for the Future

Two well-liked subjects listed in our booklet that illustrate variety are identified as, "Site Seeing" and "Planning—Where and When Do We Expand?" The former is given by one of our management people who has done much field work in locating the precise spots for new plants. The other tells how our planning for expansion takes place, who is involved, what problems they must consider, and how they reach a decision.

Those who have multiple plants and a fast-growing business will appreciate that there is always the possibility of communities raising the question: Why not build here? Help your own community rather than a bunch of strangers." A somewhat similar situation applies when an old machine is shut down in one location and re-

placed elsewhere. It is to answer such questions and to solidify the idea that a healthy corporation is the best contribution we can make to the community that these subjects are listed.

4. Forest Management

Somewhat similar to the problem of information on stream pollution is that of telling our woodlands story.

We summarize the forestry program in this way: A presentation to the layman explaining how Kimberly-Clark operates its lands so that they will produce a perpetual supply of quality pulpwood for raw material needs.

(Here is an area where it's well to have operating management armed with flannelboards, with a movie, with an assortment of slides and filmstrips, etc. Our public relations department will occasionally develop visual aids where such a facility definitely assists a company speaker.)

5. Corporate Policies, Problems

One subject that's in demand year after year deals with the state of the business—the corporation's performance and its major problems. The discussion treats the year's performance in terms of competition, product improvement, profits, plans for various units. Wherever possible, these talks are related to the unit in question, but there is also coverage on the state of the industry and its current problems and plans. This is a job that must be done better and better.

6. Research and Development

Another talk we have listed is, "Science in Industry." While this was planned as a presentation to employes aimed at increasing their appreciation of the research and development activities that are always in progress around them, it has proved to be quite useful in our contacts with schools. We have requests from time to time for help in classroom or career day programs, and this talk is being put to good use—for the industry and the corporation as well as the cause of science in general. The same approach holds for engineering.

7. Taxes: Vital and Ignored

Another type of presentation is on the subject of taxes. Many companies have been telling stockholders for years of the serious impact of taxes, not only as they reduce profits available for dividends, but as they cause serious problems in the area of expansion and of keeping plants and processes modern and efficient. Now we have a representative of the financial department to tell this story in

detail, and to describe the organization and the work that is done day-byday to administer this job. He has made the tax story livelier and more meaningful, but a great deal remains to be done.

8. Ad Infinitum

There are a number of other subjects that have considerable community relations significance. The story of our purchasing department involves facts and figures on how much purchasing is done by the corporation through local suppliers and what this can mean and does mean to townspeople other than our employes.

The fringe benefit program should have recurring interest for families of employes in particular and more than passing interest for the community. (Economically, for instance, think what it's meant for our communities to have the corporation pay out \$3,400,000 to retired employes.) Here again visual aid materials enable a number of our people to get this many-sided story into the community through the medium of employe groups.

A related subject is that of the corporation's medical program. It is important that this be understood for what it is—a supplementary effort to help private practitioners in maintaining health and correcting health deficiencies before they become disabling. Our medical director, therefore, is on the panel to explain the workings of the corporation's health services both to internal and external audiences.

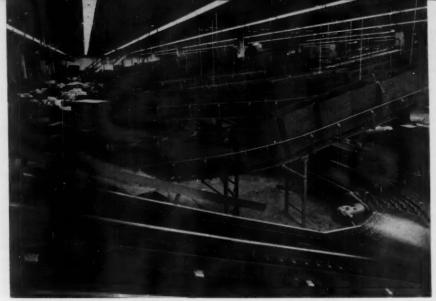
The list of subjects can go on and on—the story of advertising, for instance, and how these dollar expenditures help to build consumer acceptance and thus help to maintain the health of plant and community.

The story of sales and marketing here the importance of product quality can take on a real light if all of us hear directly what those men must hear who meet the customer every day.

Whatever the area or whatever the subject, our approach is to provide factual information and trust people to take it from there. Operating management should recognize the difference between informing people and persuading them.

Unless operating management starts these things and carries through as its own situation dictates, how can any supervisor be expected to meet with his crews on anything but immediate work assignments? How can the interested employe know or take home an adequate story of company policy, progress and problems? If he can't take it home, how can he take it to friends and neighbors?

Materials Handling Masterpiece



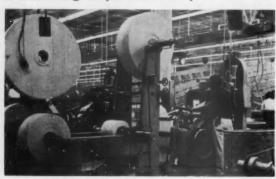
CONVEYORS CONVERGE at product finishing stations where assembled corrugated cartons are filled.

Converting operations of several Crown Zellerbach mills are consolidated in 90 tpd tissue and napkin plant

• Crown Zellerbach Corp. has consolidated its Northern California converting operations in a modern converting plant adjacent to the tissue-towel stock machines at Antioch.

The company's five-year-old converting plant at San Leandro was disassembled and its machinery moved to the Antioch plant to be installed with new equipment.

Converting Department-Napkin Section



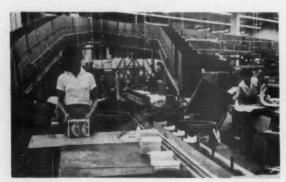
ONE OF SEVEN IN LINE, this Hudson Sharp napkin folder produces white Zee paper-wraps.

Now more than 50 converting and packaging machines are operating there, chiefly producing for the Bay Area. The converting section has more than sufficient capacity for handling the rated 90-ton-per-day local production—40 tons of tissue stock, 50 tons of towel stock. Converted production, in addition to stock produced by the three little machines, includes facial tissue and other products made from stock shipped as jumbo rolls from Crown's Camas, Wash., West Linn and St. Helens, Ore., mills.

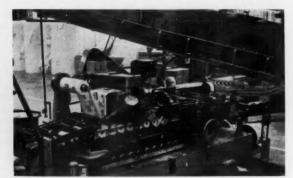
The towel and tissue converting equipment includes seven rewinders—one for household towels and six for toilet tissue; four single-fold towel interfolders, and eight napkin folders.

The converting plant is equipped with an ultra-modern conveyor system that has been described as "a materials handling masterpiece." It facilitates set-up, segregation, packing, sealing and in-case storage.

Knock-down cases are hoisted by lift truck to the mezzanine floor, where the conveyor system takes over production-line transport. There the cases are set up and fed by gravity conveyors to each individual converting machine for filling. Power conveyors return the filled cases to the mezzanine, where they are push-button-routed into any of 21 gravity segregation conveyors according to specifications of the contained product. When a load accumulates on one of these segregation lines it is run, by power conveyor, through a case sealer and then on to the warehouse.

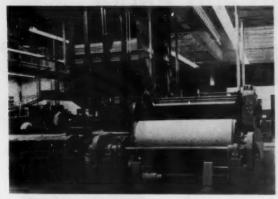


PROCESSING ZEE PAPER-WRAP yellow on one of five Hayssen napkin-wrap units.



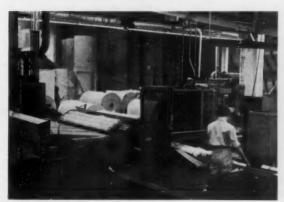
HANDLING BOTH REGULAR AND GIANT Zee rolls is this Paper Converting Machine towel wrapper.

Converting Department - Roll Tissue Section





MODERN REWINDERS TURN OUT Crown Zellerbach toilet tisues. Hudson Sharp machine with new shear cut perforation (1) and pair of Paper Converting Machine units (r) are equipped with automatic Western Gear core feeders, Lawrence cant transfers and Gilbertville automatic cant saws.





CANTS ARE DELIVERED from rewinder via Lawrence transfer table (1) to Gilbertville core saw for conversion into market-size rolls. Wrapping chiffon toilet tissue in two-roll cellophane-covered packages (r).





HAYSSEN PACKAGE WRAPPER (1) turns out four-roll wraps of Zee tissues. Lawtomatic wrapper (r) single-wraps silk tissue rolls.

PVC: Its Uses in Pulp and Paper

... where its physical properties are said to reduce maintenance problems. An expert discusses its applications

By JOHN A. WILLIAMS
Director
Bolta Plastics Fabrication Institute

• More than 20 years ago, scientists succeeded in developing—in Germany—the first acceptable grade of polyvinyl chloride for processing. Today, in pipe, sheet and other forms domestic compounds have proved service records of 5-8 years in many U. S. industrial applications. This is particularly true of the pulp and paper industry. Polyvinyl chloride's ability to resist corrosion, combined with several other unique physical properties, eliminates or reduces sharply many of the maintenance problems that have plagued process piping in this field for many years.

Performance reports show PVC possesses an unusual resistance to most alkalies, acids and salts in all concentrations; has excellent workability characteristics, high structural strength, ductility and dimensional stability; offers a greater resistance to aging than normally found in most thermoplastics, and facilitates handling because it is light weight.

At the present time, PVC is used in many pulp and paper plants—carrying alum, sulfuric acid, hydrochloric acid, sodium chlorate, sodium hydroxide, chlorine, sodium hypochlorite; and in chlorine dioxide generation, power plant water purification systems and waste drain systems.

Pulp and paper plants are, in fact, a division of the general chemical manufacturing industry. Their locations are usually in remote areas where their main raw material is readily available. A trend toward continuous processing and regeneration of byproduct wastes for process feed has in many instances resulted in a chemical manufacturing complex. Although piping corrosion problems have always been a factor, rising construction and maintenance costs and new processes have made this problem acute.

For Trouble Spots

Typical of trouble spots where PVC

has been successful are machined parts, fabricated check valves, vent lines, conduit, duct exhaust systems, drain gutters, tank liners, insulators, flooring, nuts and bolts, and many other uses; and for piping, sheet and rod stock. A typical example is the use of scrap pieces of A. M. Byers Co. PVC pipe, filled with cup grease, to protect anchor bolts on critical pumps and motors where either atmospheric or spill corrosion is commonplace. Specifically, such auxiliary uses underline the adaptability of PVC as a broad usage material of construction in the industry.

Applications of PVC in pulp and paper are only typical of the material's potential. To fully understand this potential it is necessary to be familiar with PVC's properties, installation procedures and maintenance requirements.

Joint committees of the Thermoplastic Pipe div. of the Society of Plastics Industry and the American Society of Testing Materials have developed PVC material and product specifications. A commercial standard—CS 207-57—is already in effect, and the ASTM standards are being balloted.

A program of pipe stress testing was sponsored by the thermoplastic pipe industry to become familiar with long-term loading characteristics of the end products.

PVC tests covering toxicity, water absorption, extraction and soil burial are detailed in a 90-page report published after a three-year program at the National Sanitation Foundation, Ann Arbor, Mich.

Training courses have been, and are being, utilized to aid trade groups and technical representatives of individual companies in many industrial fields.

Corrosion Resistance

What they are learning is that the applications of PVC, like other materials of construction, are largely governed by working temperatures and pressures and corrosion hazards. In its working range, PVC has been shown to be ideal for many corrosive services.



JOHN A. WILLIAMS, a graduate of the Univ. of New Hampshire, was named director of the Bolta Plastics Fabrication Institute in 1955. Prior to that he had served as both a technical service and research engineer for the General Chemical div. of Allied Chemical Corp.

He is a member of the Society of Plastics Industry, the American Society of Testing Materials and is a certified instructor of plastic pipe installation.

Polyvinyl chloride possesses a wide range of corrosion resistance. Since PVC is a non-conductor, it is immune to galvanic or electrolytic attack. Smooth inside and out it does not pit, groove or tuberculate and is attacked by relatively few chemicals. A completely amorphous material, PVC does not exhibit typical crystaline characteristics.

The field of PVC components has broadened considerably. Now, numerous valve designs, check valves, strainers, expansion joints and a wide range of fittings—including the drainage variety—are available. PVC, alone among the thermoplastic materials, can be cemented, machined, welded and heat-formed. Socket cement joints permit use of more economical thinwalled schedules for most services.

Properties of PVC

Basically, PVC is divided in two classifications (see Tables).

Type I is compounded of pure PVC resin and minimum quantities of lubricants and stabilizers to permit proc-

PROPERTIES OF TYPES I AND II PVC

Property	Type I	Type II	ASTM Test No.
Mechanical*			
Specific Gravity	1.425	1.350	D-792
Tensile Strength, psi	7,000	5,500	D-638
Elongation at Yield Point, % Modulus of Elasticity, psi	3.0	3.6	D-638
Flexural Strength, psi	4.25 x 10 ⁶ 10.000	3.7 x 10 ⁶ 8,500	D-638 D-790
Modulus of Elasticity in Flexure, psi	3.5 x 10 ^s	2.5 x 10°	D-790
Impact, Izod notched, ftlb. in.	0.5 to 1.5	6 to 10	D-256
Durometer Hardness, Shore 'D' Scale	83	77	D-676
Compressive Strength, psi	10,100	8,600	D-695
Thermal			
*Thermal Expansion, in./in./°C	6.70 x 10 ⁻⁶	9.0 x 10-6	D-696
*Thermal Expansion, in./in./*F	3.72 x 10-8	5.0 x 10-6	D-696
Heat Distortion, Temp. °F at 264 psi	164.6	150.0	D-648
 Thermal Conductivity, BTU/sec./ft.*/°F/in Specific Heat, BTU/lb./°F 	. 3.2 x 10 ⁻⁴ .25	3.5 x 10 ⁻⁴ .25	
77 10			
Electrical*	2011	200	
Dielectric Strength, volts/mil Dielectric Constant, 60 cps	397 3.30	335 3.50	D-149 D-150
Dielectric Constant, 1,000 cps	3.20	3.20	D-150
Power Factor, 60 cps	.013	.07	D-150
Power Factor, 1,000 cps	.019	.028	D-150
Volume Resistivity, ohms/cm.	7.05 x 10 ¹²	2.5 x 10 ¹⁸	D-275
Other			
Water Absorption, % in 24 hrs. at 75°F	.12	.30	D-570
Flammability	will not sup- port combustion	self-	_

Properties at 73.5°F.

essing. Type II contains all these and a synthetic rubber modifier to provide higher impact resistance over normal temperature ranges. Type I is more applicable to the pulp and paper industry, since it is more capable in resisting corrosion and has a lower creep rate. Creep causes a significant reduction in resistance to loading with respect to time. The normal impact

resistance of Type I limits its use in mechanically punishing applications.

Installation & Maintenance

Particular importance in installation and maintenance should be shown to cemented joints, welding, threaded connections, bending, support, water hammer, buried lines and thermal expansion.

Installation and Maintenance

Cemented Joints. These steps should insure sound, leak-proof cemented joints.

1. Cut ends of pipe square; butt fully against shoulder of fitting.

2. Clean pipe ends and fittings with cleaner such as methylene chloride, acetone or carbon tetrachloride.

3. Apply cement liberally to pipe and fitting with a clean brush; include shoulder of fitting and butt end of pipe.

4. Insert pipe into fitting with onequarter turn. Time elapse—from start of cement application to completion of onequarter turn—must not exceed 1½ min. regardless of pipe size. Never disturb bond by readjusting pipe after one-quarter turn is made.

When properly made, a PVC cement joint gives a bond stronger than burst pressure of the pipe.

Welding. Through instruction and training, installation and maintenance personnel can become competent hot air fusion welders of PVC in much less time than required to master metal welding. If properly made, PVC welds have an average tensile strength of 80 to 90% of parent material.

Threaded Connections. Though cementing and heat welding produce the strongest joints, threaded joints can be made with PVC pipe and in many instances are necessary or desirable due to the job requirements.

Using standard hand or machine pipe threaded tools, Schedules 80 and 120 pipe are easily threaded. Threading of Schedule 40 pipe is not recommended. And threaded joints are not recommended if operating temperature is scheduled to exceed 120° F.

In assembly, the threaded connection should be hand-tightened. Additional torque can be applied with a strap or parmelle wrench. Standard pipe wrenches should not be used with PVC pipe or fittings.

Bending. All PVC bending is done hot, with the section to be bent heated to 250-275° F in a circulated hot air oven, immersion in heated oil, hot air torch or other uniform heating devices. Cooling is by air or, more quickly, by cold water.

Use of bending forms and sand fills for piping 2 in. or more in dia. produces even bends and prevents flattening.

Support. PVC pipe should be installed in such a manner that it is not forced out of line by pipe supports, hangers or other supporting members.

Most favorable hangers are the clevis or strap type, except where axial thrust must be controlled. Roll, ring, angle or spring hangers may also be used. For firm anchoring, metal compression hangers should be padded with a compressable insert hand.

Support spacing is based on bending stress and deflection calculations. Valves should be braced to resist torque during valve manipulation.

Water Hammer. In a majority of installations water hammer can be avoided by taking operational precautions based on pressure and surge analysis of the pipeline. If water hammer-scrious in metal or thermoplastic installation—cannot be avoided, installation techniques should be employed to minimize it. Shock pressures should never exceed 2% times recommended working pressure.

Buried Lines. Cemented joints are recommended for buried lines. The cost of a one bead seal weld can be readily shown to be a very minor factor in relation to ditching, filling and materials cost. When possible, PVC pipe should be assembled above ground and then lowered into a prepared trench. Bottom fill, 4 to 6 in. below pipe, should be free of rock and other sharp objects. The same type fill is recommended for the first 8 to 12 in. to back fill and should fully enclose the line. All lines should be buried below frost level.

Thermal Expansion. PVC, like all thermoplastic pipe materials, has a relatively high rate of thermal expansion. Thermal range dictates the type joint and means of compensation.

Socket cemented connections are preferred to threaded joints where appreciable thermal changes are anticipated.

Exclusive Report on the New T.L.T. Method

The Loreto and Peña Pobre mills were visited early this year by Albert W. Wilson, editor of PULP & PAPER and PULP & PAPER INTERNATIONAL, who obtained this exclusive report on a new method of control kraft mill odors.

The Inventors:

Unfortunately, the famous Swedish engineer, K. G. Trobeck had died shortly before this visit. But he had been on hand to start this work at Peña Pobre kraft mill and was assured of its success. Mr. Trobeck was one of Sweden's best known pulp mill engineers. He was widely acclaimed as "the father" of black liquor oxidation, and for his work over many years in odor elimination.

The new T.L.T. Method is named for the three men who created it: K. G. Trobeck, Walter Lenz and A. Tirado A. (their initials are used in the name). Mr. Trobeck was president of Aktiebolaget B-T Metoder. Walter Lenz, of German descent, is vice president and pulp mill director, Fábricas de Papel Loreto y Peña Pobre, S.A., San Angel, D.F., Mexico. Mr. Tirado is his pulp mill superintendent.

The Process:

The new T.L.T. Method makes use of the conversion of mercaptans into hydrogen sulfide. This is further oxidized by means of air. From 1 to 3 kg. chlorine per ton of pulp is added to supplement the chemical treatment.

At the Peña Pobre kraft mill, officials said they were convinced that as soon as a few adjustments were completed and automatic operation started, the results will be essentially perfect. The Mill:

A visitor to these mills, built, owned and operated by the Lenz family, might think he was in a typically neat and efficient German mill. As in Germany, they make a great variety of grades. These are among the most efficient, well-designed and cleanest mills to be found anywhere in America—North or South. It is one of the four biggest companies in Mexico. The late Alberto Lenz migrated from Germany to start the industry and his three sons are carrying on.







Hans Lenz

Walter Lenz

Alberto Lenz, Jr.

Officers of Fábricas de Papel Loreto y Peña Pobre S. A.

HANS LENZ is president of the company, one of Mexico's biggest, which their father founded. He is also director of the Loreto Paper Mill at San Angel. His brothers are vice presidents. Walter is also director of the Peña Pobre sulfate pulp mill at Tlalpan. Alberto is director of the paper mill at Tlalpan. Walter is co-author of the technical report published on these pages and co-inventor of the process described.

Air Pollution Control

process is Swedish-Mexican development. Will be "nearly perfect."

People living near mill assist as "observers"

BY K. G. TROBECK, WALTER LENZ and A. TIRADO A.

● The kraft pulp mill of Fábricas de Papel Loreto y Peña Pobre, S.A., is situated just at the southern end of the Valley of Mexico City. When the mill was built in 1942, all the surrounding area consisted of rough country, where very few people lived, except for people working for the mill. A small town—Tlalpan—about two miles east, was the only town close to the mill; but at present there are other residential areas within two to five miles to the north and west.

In this part of the country, the wind usually blows from the north so that most of the time the odorous gases are carried into the hills and mountains south of the mill. A 300-ft. stack helps diffuse the gases from the recovery boiler into the higher atmospheric layers. However, a high odor level existed around the mill and a complete program to eliminate the odor was started several years ago.

The first obvious step was to seal. as much as possible, all the equipment, piping, ducts, etc. to bring noxious gases to locations for later treatment.

Masking Agents Proved Only Partially Effective

Addition of masking agents seemed to be the easiest way to eliminate odor nuisance and they were used in the kraft mill for several years.

Masking agents do not modify the chemical composition of the original odorous substance, but simply cover it by means of another odor which creates a pleasant sensation. A certain mixture of masking agent and of the noxious odors must then come from any of the possible sources of odor in the mill.

A proper amount of the masking agent should remain in the gases at all times, no matter the distance from the mill or the metereological and atmospheric conditions.

In practice, masking agents proved of some help. However, they failed to cover 100% of the odor under certain conditions.

Another Control Measure: Black Liquor Oxidation

It is well known that a substantial amount of sulfur compounds is fixed in the black liquor by means of oxidation, so that black liquor oxidation plays a very important role in the elimination of air pollution.

A variety of materials such as softwoods, hardwoods, bagasse, straw, etc., is cooked in this particular mill, and, consequently, the physical and chemical properties of black liquors change periodically. For this reason, an oxidation plant of the BT-Metoder system was installed in the mill, since it was known that this plant performs well with either foamy or non-foamy black liquors. In this plant, the oxidation of sulfides is always 100% provided that the tower is kept "clean," the cleaning operation consisting of a wash made by running hot water through the tower during 30 minutes once every week.

Several sources of noxious odors are eliminated at once when the black liquor is properly oxidized before it goes into the evaporators, as shown on TABLE I. So, no noxious gases or condensates are detected either by titration nor by personal observation in the multiple effect evaporator, and this is true even though the condensing water circulates from the barometric condenser through a water cooling pond, in order to conserve fresh water. The water in the pond is practically saturated in gases, nevertheless it has no odor provided that the pH remains on the alkaline side.

In addition, no odorous sulfur compounds are detected in the gases going to the stack of the recovery boiler as long as well-oxidized black liquor is fed into the cascade evaporator.

However, in order to get this good result, enough excess air has to be added in the recovery boiler so that the combustion gases still contain at least 2% free oxygen; otherwise, some sulfur compounds can be chemically reduced to render again mercaptans, organic sulfides, etc. If the recovery boiler is overloaded, it will be difficult to maintain the required amount of free oxygen in the gases, thus making necessary a special treatment for these gases before they go to the atmosphere.

Sources of Odors And How They Are Treated

The sources of kraft pulp mill air pollution may be grouped as follows:

I. Odors due to gases vented from the brown stock washers and the liquor tanks.

II. Odors liberated from the mul-

TABLE 1.—SOURCES OF ODORS

Liquor Tank—(All measurements obtained by taking samples at a point 6 inches inside vent pipe):	TITRILOG NET READING	SULFUR COMPOUNDS GIVEN AS H ₂ S ppm
Vent of weak black liquor tank from washers Same before oxidation	40-55 18-22	2.44-3.55 1.09-1.34
Same after oxidation	18-22	0.67
Vent from cyclone of oxidizing tower	17-23	1.04-1.40
Sealed tank of barometric column-multiple		
effect evaporation	3	0.18
Condensate water from multiple effect evap-	0	0.10
orator Chimney of smelt-dissolving tank	2 7	0.12 0.43
Vent of white liquor tank	11-15	0.67-0.92
Concentrated black liquor tank	22-28	1.34-1.70
Water and Gases from Digesters Untreated— Relief gases after dilution with 900 cubic feet of air per minute:		
	Varia	
	from 30	from 1.8
	to	to
	300	18.3
Gases from chlorination outlet within fume		
stream	3-6	0.18-0.36
Gases from Recovery Boiler—(The black liquor was previously oxidized, with an oxidation of 100%, measured as conversion of sulfides into thiosulfates)		
Before scrubbing and chlorination After scrubbing and chlorination—Final wash	10-26	0.61-1.58
at pH of 6	8-20	0.49-1.22
Same. Final wash at pH of 9	3-4	0.18-0.24
For Comparison:		
Gases from power boilers, burning fuel oil	2-3	0.12-0.18
Cigaret smoke: Cigaret 2 inches from intake of sampling apparatus	90	5.49

tiple effect evaporator which may consist of: 1.—Odors due to noncondensable gases, 2.—Odors due to condensate waters.

III. Odors produced during the cook: 1 During digester reliefs, which comprise: a) Noncondensable gases. b) Condensate water.

2. During the blow-off, consisting of: a) Noncondensable gases. b) Condensate water.

IV. Odors due to gases escaping from the recovery boiler, cascade evaporator, etc., through the stack.

Concentrations of sulfur compounds in gases from several sources are shown on Table I, as determined by means of a Titrilog.1 Therefore, Table I gives an indication of the relative importance of these sources as causes of pollution. However, it should be mentioned that the importance of a gas stream as a source of pollution is determined not only by its concentration, but also by the rate of flow at which the total volume of gases goes into the atmosphere. In other words, the allowable concentration of bad smelling compounds has to be smaller as the rate of flow of total gases increases.

According to our experience, odors due to gases in Group I are negligible because both the concentration and the rate of flow are small. These gases are disregarded in the Peña Pobre mill. However, there might be one only exception: if a great volume of air enters through the wire faces of the brown stock washers, the tank where this air is vented out to the atmosphere might constitute a source of pollution. In this case, such vented air should be piped and used as air supply in the chemical treatment mentioned hereafter.

Odors in Group II are completely eliminated by proper oxidation of the black liquor with air.

Noxious compounds under Group III are the most important source of pollution and require special treatments in order to be destroyed. Gases from the blow-off are the more difficult to treat, since a big volume of highly concentrated gases is liberated in a very short time.

Odors due to gases shown in Group IV are of minor importance as they can be eliminated by means of black liquor oxidation followed by proper combustion in the recovery boiler. However, adequate treatments are needed to destroy odors due to changes in the operating conditions of the recovery boiler.

A chemical treatment for the gases and waters listed under Groups III and

PENA POBRE

IV was developed in this mill, and it is the subject of the following discussion:

Digester Heat Recovery System Is Effective Control

The digester heat recovery system used in a mill is directly tied to air pollution control since it is possible to have some of the offensive compounds either in the noncondensable gases or in the condensate water according to the condensing temperature. This is because the so-called "noncondensable gases" really consist of a mixture of true noncondensable gases plus vapors, including water vapor. Therefore, the higher the temperature in the condenser the more the amount of noxious vapors in the noncondensable gases, and consequently, the bigger the volume of material to be treated in gaseous phase. At the same time, the amount of water vapor increases very rapidly with the temperature, and the higher the condensing temperature, the more the dilution of these compounds in the gaseous phase. On the



LENZ'S PEÑA POBRE SULFATE PULP MILL, near Mexico City, where one of most advanced systems for odor abatement in the pulp industry has been successfully put into operation. This mill is at Tlalpan, D.F., Mexico, and has a capacity of 60 tons per day.

other hand, a smaller proportion of noxious compounds will be present in the condensate if the condensing temperature increases.

Then, the condensing temperature—which determines the pressure in the condenser—influences the flow and composition of the gaseous and liquid

streams, and such temperature must be controlled within narrow limits in order to secure uniform results in the chemical treatment. This point should not be underestimated: small differences in wood species, digester charges, liquor composition, digester operation, etc. will tend to produce substantial differences in flow and/or composition of gases and condensates from one cook to the other one, and these differences have to be kept at a minimum by means of the temperature control.

A surface condenser is installed in this mill. This type of condenser seems to produce contaminated condensate water in smaller batches during the blows, which makes it easier to destroy bad odors in such condensate water. However, any other type of condenser can be used as well, provided that no gases escape from the condenser or the contaminated water storage tank directly into the atmosphere.

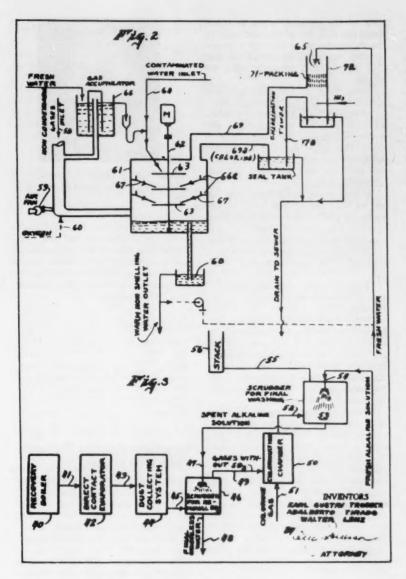
A special instrumentation for the condenser was developed in the Peña Pobre mill. This instrumentation allows the condensing temperature to be held at about 50-60° C. while fresh water is heated up to 60° C.

Gases plus steam liberated during relief of digesters are introduced into the blow tank, and then, into the same surface condenser that is mentioned in the above paragraphs. No recovery of turpentine, methyl alcohol, etc. is made at this mill. A continuous steam purge is introduced into the blow tank in order to prevent gases from being trapped into the system.

PACRIMO TOWER OF SCRIMONER OF STAINS OF STAINS

Chemical Treatment: The T.L.T. Method

Several years ago, K. G. Trobeck found that the mercaptan content of



contaminated waters, from kraft digesters, decreased as long as these waters remained in contact with air in a sealed flask. At the same time, hydrogen sulfide was produced. He also found that neither the mercaptan nor the hydrogen sulfide content of the water was affected when the air was substituted by nitrogen. So, it was apparent that mercaptans can be converted into hydrogen sulfide if they are mixed with air and water. Probably, the following reaction applies: $CH_3-OH + H_2S = CH_3-SH + H_2O$

This reaction proceeds up to a certain equilibrium depending on the temperature ²; nevertheless, it will go from the right to the left as far as the hydrogen sulfide is removed. It is believed that the role of the air in the

experiments made by Trobeck was to

eliminate the hydrogen sulfide by oxidation.

In accordance with above ideas, a scrubber was built in our mill which promoted a good contact between air, noncoindensable gases and contaminated condensate water from the digesters, as shown in Fig. 2. In this way all the noxious compounds from the blow-off and relieving of digesters are treated at once in one single apparatus.

A definite reduction of air pollution from the gases and a virtual elimination of the odor from the condensate water were obtained as soon as the operation of the scrubber started.

Some hydrogen sulfide and small amounts of other organic sulfur compounds were still present in the gases at the outlet of the scrubber, and then, about 1-3 kg. chorine per ton of pulp was added in order to finish the treatment (See Fig.2).

Basically, the same stages are applied to gases from the recovery boiler, so that they are liberated from the odor notwithstanding that this mill's recovery boiler is overloaded some times.

Odor Measurements and Their Results

Two indirect methods of measuring odors are used in our mill:

1. The Titrilog¹ which is a very sensitive instrument capable of determining and recording the concentration of chemical compounds able to react with bromine.

2. Observers situated in observation posts around the mill.

The Titrilog has proved to be very useful for our own control, since it detects minute concentrations of mercaptans, organic sulfides, hydrogen sulfide, etc. However, it has some limitations: of course, it does not necessarily measure odorous compounds which we are interested in, but it reports compounds which may include noxious sulfur compounds as well as medium or non-smelling substances. Nevertheless, our experience indicates that the readings on the Titrilog are in good agreement with the existence or absence of bad odors.

"Observation Posts"

Residents also report levels of odor in their homes. They are the mill's observers in their observation posts. These people do not have any direct relation to the mill. There are 15 to 17 normal observation posts located more or less uniformly within a radius of 5 km. around the mill, the area being divided in five sections at 1 km. radius, 2 km. radius, etc. In this way it is possible to see how the odor level is affected by the distance.

A simple form is supplied to these observers so that they may report any of the three possible conditions: strong odor, faint odor or no odor, in addition to the date and time of observation. Those forms are collected weekly, and a survey of possible causes of odor is made in the mill, paying special attention to the wind velocity and direction as well as to the operating conditions prevailing in the mill. Of course these require a set of instruments which continuously record wind velocity and direction at the mill. Incidentally, an atmospheric temperature, pressure and humidity recorder will be added soon, in order to record the influence of the meteorological conditions more accurately.

Some figures based on the data from the observation posts, however, disregard the stack of the recovery

PENA POBRE

boiler as a source of pollution. This is mainly because of the low readings shown by gases from the stack on the Titrilog, and also the practical impossibility to judge—just by means of the reports—whether or not the gases from the stack are responsible for the odors. On the other hand, odors due to the stack—if any—should be of a rather uniform and continuous nature, and would produce the same relative effect at each observation post without modifying the general trend shown by the figures.

Data Show Odor Sources

In compiling the data quoted below, digesters are considered as the only possible source of bad odors from the mill:

On the average, 56% of the reported odors may be attributed to gases escaping during the blow-off as long as the reports are in agreement with the wind velocity and direction.

wind velocity and direction.

About 23% of the reported odors may be due to gases liberated during the digester relieving period, as indicated by the wind velocity and direction.

Another 17% of the reported odors are attributed to unknown causes, since the wind direction and velocity—for extended periods before and after the reported observation—show that the gases had to travel in an opposite direction.

There are still 4% of the reported odors that are certainly due to sources other than the mill, as they were detected more than 10 hours after the mill was shut down on Sundays, and during a week in which the mill was shut down for repairs

In other words, it is possible for

79% of the reported odors to come from the mill, but it does not seem to be so for the other 21%. As a consequence, the origin of part of the first 79% of reported odors is open to doubt.

Since most of the reports correspond to the blowing, we use to compare results by figuring the number of reported odors per blow per observer; which is of the order of 0.002-0.02. This figure includes all reports whatever the origin of the odor may be, even the ones we know are not due to the mill.

A few more conclusions may be drawn from the reports: Neighboring residents gladly collaborate in making reports, but most of them are not qualified to decide the origin of the odors. They also prefer to report either "strong" or "no odor" instead of "faint odor."

Most odors are perceived in observation posts for not more than a few

Odors from the condensate water from digesters do not constitute a source of pollution any more. There are two or three observers located beside a small creek which conveys the condensate water outside the mill. Nevertheless, they have not reported any odor for a long time.

Odors produced during the blowing of digesters are by far the most difficult to destroy. However, there is a good evidence that no odors come from the mill to the observation posts provided the flow of gases through our reactor and chlorinator does not exceed a certain critical value. Therefore, we are proceeding to enlarge our reactor and chlorinator, so that they can handle all the gases produced during the peaks. In addition, automatic instrumentation is to be provided in order to eliminate manual



ADALBERTO TIRADO, chemical engineer, one of developers of new process

control and prevent human failures.

Normally, there is no bad odor inside the mill or the surroundings, and it is believed that a virtual perfect result will be achieved as soon as the equipment is enlarged and automatic control is established.

Literature Cited.

¹ Landsberg Henry and Escher E. E., Ind. Eng. Chem. 46, No. 7:1422-1428 (July 1954). ² Kirk E. R. and Othmer D. F., "Encyclopedia of Chemical Technology," 1st. ed., vol. VIII, page 864, New York, The Interscience Encyclopedia, Inc.,

Canadians Arrange Exchange Visits With Russia

Montreal . . . A group-exchange visit has been arranged between the pulp and paper industries of Canada and the U.S.S.R., sponsored by Pulp and Paper Magazine of Canada in coperation with the Canadian Pulp and Paper Assn.

The Canadian group will visit Soviet Union mills and research institutes during the last three weeks in October. A return visit to Canada by Russians will occur in 1960.

Already planning to go to Russia are S. E. Williams, vice pres., St. Lawrence Corp.; Arthur Schmon, president, of Ontario Paper Co.; H. M. S. Lewin, vice pres., Bowater Corp. of North America; E. W. McBride, vice-pres., Abitibi Power & Paper Co.; J. L. Keays, supt. of research and development, Powell River Co.; J. McK. Limerick, research director, Bathurst Power & Paper Co.; H. S. Spencer, mill manager, Howard Smith Paper Mills Ltd., Beauharnois, P.Q.; G. D. Hughson, director, Gatineau Div., Industrial Cellulose Research Ltd.; P. A. Harakas, chief engineer, Ontario Paper Co.; Douglas Jones, exec. secy., Technical Section, Canadian Assn., and F. A. Price, technical editor, of the magazine.



ONE OF ANCIENT MEXICAN PYRAMIDS is shown here beyond woodpile for Peña Pobre sulfate pulp mill. In foreground, note stone firewalls, between wood stacks. Peña pobre means "poor rock," indicating the nature of land surface near the mill.

Rayonier To Build Mill in W. Canada

Construction of a new bleached sulfate pulp mill at Woodfibre, B.C., by Rayonier Canada Ltd. (Alaska Pine & Cellulose prior to Oct. 1, when a name change became effective) is to start shortly, according to W. E. Breitenbach, president.

It will replace the firm's sulfite mill that manufactured bleached pulp for paper and chemical cellulose until June of last year, when the plant closed down. Plans call for completion of the kraft mill early in 1961.

Mr. Breitenbach states the project "will mean the rebirth of one of the oldest pulp mill communities in B.C." He pointed out that this is a progressive move for integrating utilization of the firm's forest resources. Two wood species—cedar and fir—not previously utilized in the chemical cellulose mill will be included in the wood supply for kraft pulp production. Besides, chips will be obtained from the company's large sawmills located at New Westminster and Marpole.

Some components of the existing plant will be incorporated into the

new operation. Included are buildings and machines, water-storage dam, wood plant, chip bins and power plant. Demolition work is starting immediately on other portions of the old mill. Removals include the acid plant and equipment, digesters, bleached and unbleached screen rooms. Replacing these are five 12- by 55-ft. digesters, a brownstock washing system and screening plant. A lime kiln and causticising plant will be erected, 250-ton recovery boiler and multipleeffect evaporators installed, and major changes are to be made in the bleach plant, including the addition of bleaching stages.

Sandwell & Co., working closely with Rayonier and its central engineering divisions, is handling the detail engineering.

(The name change was made, according to President Breitenbach, to avoid increasing confusion in overseas markets. Originally, the firm marketed hemlock lumber, but since has entered the pulp production field. Additionally, two other firms have built pulp mills in Alaska.)

Long Distance Pumping Of Solids, Including Chips

New engineering concepts in transportation of solids through pipelines can now open the way to a whole new area of cost reduction in many industries including pulp and paper, Julian Nardi, chief mechanical engineer of Ford, Bacon & Davis, Inc., consulting firm, told a recent meeting in Cleveland of the American Society of Civil Engineers. Mr. Nardi was formerly a senior engineer for ten years with Stone & Webster.

In expounding his thesis, Mr. Nardi referred to a U.S. Rubber Co. advertisement in PULP & PAPER which showed 60 ft. lengths of hose unloading liquefied pulp from Canada in special tankers at the Antioch, Calif., Crown Zellerbach paper mill.

He referred to a March, 1959 issue of PULP & PAPER with an article by Lincoln Thiesmeyer of the Pulp & Paper Institute of Canada, in which the latter discusses a scheme to pipe chips long distances from woods to mill, and even heating a final section of the pipe and injecting chemicals to partially pulp the chips.

"Partial processing of solids in pipes is a possible key to a whole new line of products," said Mr. Nardi.

of products," said Mr. Nardi.

He referred to pneumatic transport
of chips a distance of one mile to the
Kaiser Gypsum (formerly Fir-Tex) in-

sulating board mill in St. Helens, Ore. Other pulp pipelines in this industry include Consolidated Water Power & Paper's from Wisconsin Rapids to Biron, Wis., and Minnesota & Ontario's and Fraser Paper's, both across international borders.

He said rising costs of labor and materials and eliminating the need of "returning empty" gives pipelines basic advantages of railroads and trucks.

"Long distance pumping of solids is no longer in its infancy and even large lumps in slurry can be pumped short distances," he said. He recommended chemical additives "to minimize corrosion."

Lake States Group Meets At Allis-Chalmers Plant

The Lake States TAPPI section is to hold its annual engineering meeting on Tuesday, October 6 at the Allis-Chalmers plant in Milwaukee. There will be a dinner session in Milwaukee in the evening.

On Tuesday, Nov. 10, this section holds a by-products and waste disposal meeting at Consolidated Water Power & Paper Co., Wisconsin Rapids, Wis., and will have dinner at the Mead hotel.

Simpson, Lee Merger OK'd; California Mill Planned

Proposed merger of Lee Paper Co., Vicksburg, Mich., and Simpson Paper Co., Everett, Wash., has been approved by officials of the two firms.

Stockholders of Lee Paper will vote on a proposed exchange of shares for shares in the newly incorporated Simpson Lee Paper Co., in which Simpson Timber Co. will hold majority interest. (The Everet paper manufacturer is a Simpson Timber subsidiary.)

At the same time, it was reported that the new firm expects to build a \$7,000,000 mill at Ripon, Cal., near Modesto. Production will consist of tracing, base paper for blueprints, photographic base and text paper. A 200-acre site for the plant has been purchased.

Reports a Simpson spokesman, "the merger will give the new firm one of the most complete paper lines in the United States." Lee and Simpson now make supplementing lines.

Said an official of Lee Paper: The West Coast market is but one of the reasons for choosing the California site, others being availability of water, raw materials and labor. A paper machine for the mill is now on order.

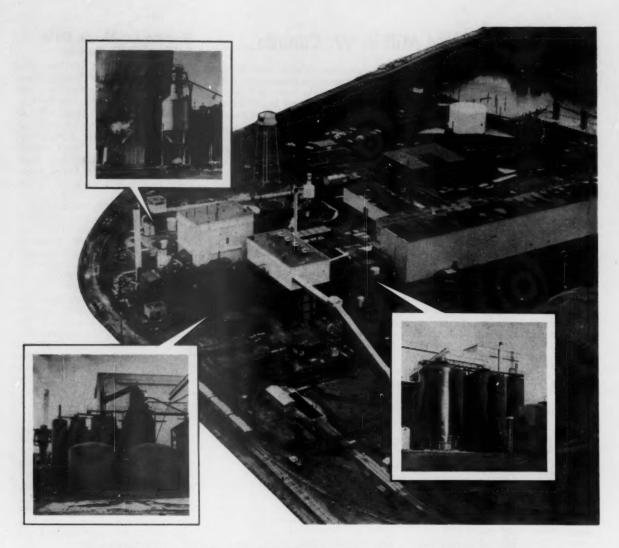
President of Simpson Lee will be Maxwell Bardeen of Kalamazoo, president of Lee Paper. Vice presidents will include Donald F. McCall, vice pres. and gen. mgr. of Simpson; Norman Bardeen and Albert A. Christian, vice presidents of the Michigan firm. Mr. Christian will also serve as secretary; Kenneth A. Warren, now Lee Paper treas., will serve in the same capacity for Simpson Lee.

First Paper Machine in Montana Planned for Waldorf-Hoerner

In a news release issued for Hoerner Boxes Inc., Keokuk, Iowa, corrugated box manufacturer, it was stated that the new Waldorf-Hoerner Paper Products Co. (a 50-50 partnership between Hoerner and Waldorf Paper Products of St. Paul), which now is owner of the new pulp mill at Missoula, Mont., is planning to enlarge the pulp capacity of that mill and to install a paperboard machine. This will be the State of Montana's first paper machine of any kind.

Crossett Employes Honored for Safety

Crossett Paper Mills at Crossett, Ark., has established the lowest accident frequency rate recorded by the southern paper industry during the five-year period, 1953-57. Mill employees were honored recently by the American Paper & Pulp Assn.



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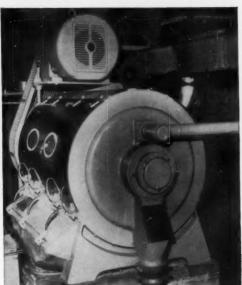
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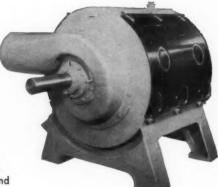


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- a special stator which provides uniform internal distribution of pulp;
- a patented high-efficiency rotor which increases capacity without additional horsepower;*
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* U. S. Patent No. 2,845,848,

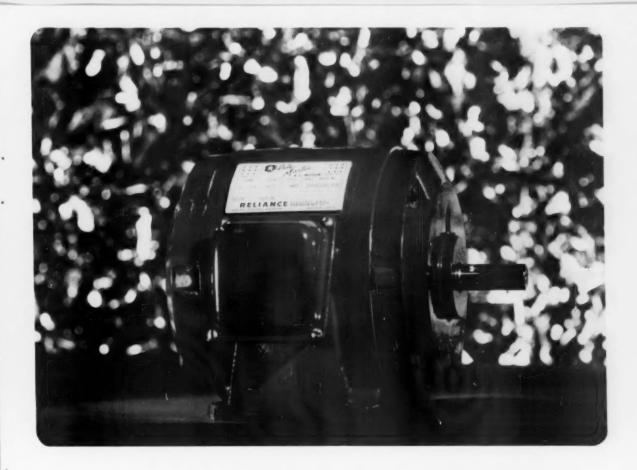


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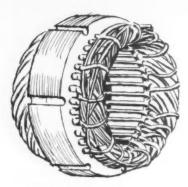
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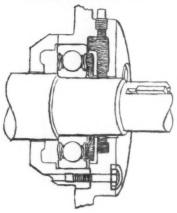
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Earl C. Barnes, Chief Engineer

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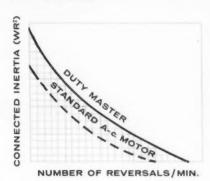
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A-C. MOTOR



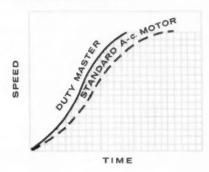
Dr. C. G. Veinott, Chief A-c. Design Engineer

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John Walker, Manufacturing Manager

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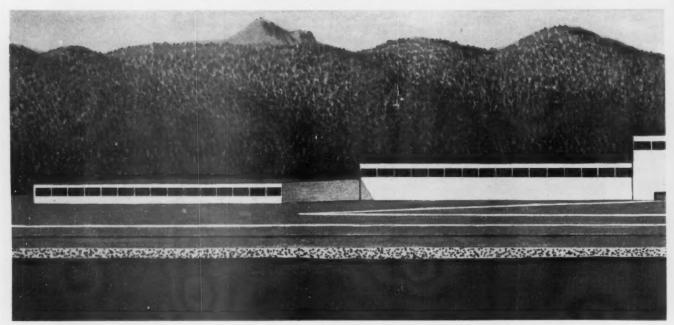


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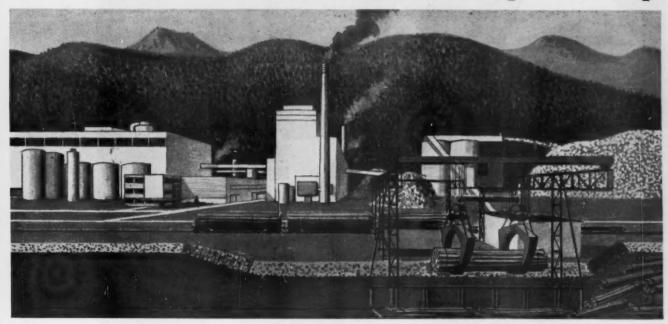
Who is CELGAR?

Celgar Limited is a Canadian company affiliated with the Celanese Corporation of America. It was incorporated in September, 1951, to establish a forest products industry in the Arrow Lakes area of British Columbia, and now operates two sawmills on the Columbia River. Celgar's associate company, Columbia Cellulose Company, Limited, operates a dissolving grade sulphite mill near Prince Rupert, on the northern coast of British Columbia.

Where is CELGAR?

Celgar's pulp mill, with new sawmill facilities adjoining, is under construction on the Columbia River just two and one-half miles west of Castlegar, in the southern interior of British Columbia. The Company's Tree Farm Licence area stretches 200 miles through the Arrow Lakes District to the north. The Columbia River, which drains the Arrow Lakes Basin, crosses the U.S. border only 18 miles below the mill site, flowing on through Washington and Oregon to the Pacific.

Market Bleached Kraft Paper Pulp



500 TONS DAILY

Early in 1961, Celgar's new high quality market pulp mill will go on stream. It will have a designed daily capacity of 500 tons of bleached kraft paper pulp.

Celgar holds in perpetuity almost 900,000 acres of productive forest land containing large volumes of pulpwood species such as hemlock, spruce, Douglas fir and balsam. Adjacent timber lands contain more than three and one-half times the pulpwood volume of the licence area. These wood resources ensure that Celgar has the ability to meet future demands. The total wood supply could support over 1,500 tons of pulp production daily in perpetuity.

THE QUALITY OF CELGAR KRAFT

The quality characteristics of Celgar Kraft have been established through a continuing program of wood sampling, pulping, bleaching and papermaking in Celgar's own laboratories and in the experimental plants of independent pulp and paper organizations. The long, tough fibres from high-density softwoods develop high

bursting strength coupled with outstanding tear resistance over a wide range of freeness and in a variety of stock preparation equipment. The modern Celgar process design and equipment will preserve these inherent characteristics while achieving the highest level of brightness, cleanliness and uniformity to meet the exacting demands of the trade.

COLUMBIA PULP SALES LIMITED has been formed to distribute Celgar Kraft pulps and Columbia Cellulose sulphite pulps. Offices are located at:

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Specialists in designing and Building Paper Mill Machinery

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MACHINE COMPANY

MIDDLETOWN, OHIO





• FIRST STEP IN ALBANY FELT EFFICIENCY SURVEY is discussion of aims and operating problems by Superintendent and Albany Felt Sales Engineer, with all pertinent data recorded.



ANALYZING THE SALES ENGINEER'S RE-PORT, Albany Felt Design specialists determine the felt specifications that will best solve customer's felt application problem.



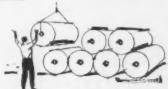
DESIGN SPECIALIST REVIEWS REQUIRE-MENTS with Manufacturing and Quality Control personnel.



ALBANY FELT COMPANY

Main Office and Plant: Albany, N. Y.

Other Plants: Hoosick Falls, N. Y., N. Monmouth, Me., St. Stephen, S. C., Cowansville, P. Q.



RESULT: MAXIMUM FELT LIFE AND MAXIMUM DAILY PRODUCTION!

THE WORLD'S LARGEST MAKER OF PAPER MACHINE FELTS

Honeywell gives you the most for your instrumentation

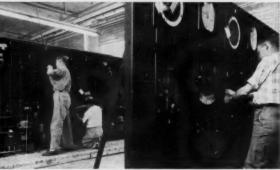
dollar . . . BECAUSE YOUR COMPLETE
MILL INSTRUMENTATION CAN BE INSTALLED
BY THOSE WHO KNOW IT BEST



 No "Will it work?" Worries. We custom design control systems for a single process or for your entire mill. This means instrumentation that is matched to your processes and will do the job you want it to do.



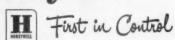
3. No Installation Headaches. We will contract to completely install instrumentation. Honeywell technicians will perform the prestart-up check out and deliver an operating control system to you. You get installation plus peak performance from your control system in the least possible time.



2. No Pre-Installation Problems. We carefully co-ordinate materials and labor; ship panels prewired and piped, ready to install. No need to recruit, relocate, or reassign personnel.

Honeywell offers you far more than just instruments. You can get all or any part of these time and money-savers. Add to these services our many years of engineering and application knowhow. You'll see why Honeywell is your best buy in pulp and paper instrumentation, whether you deal directly with us or through your consultant or contractor.

Honeywell





4. No Unscheduled Downtime. We can provide periodic maintenance by experienced service engineers—a big help in eliminating unscheduled downtime. Your instrument etchnicians are welcome at our instrumentation Education Center in Philadelphia, where they receive free, expert training in the operation and maintenance of our products.

Shave conveying costs with LINK-BELT woodyard chains



LINK-BELT COMPANY: Executive Offices, Prudential Plaza, Chicago 1. To Serve Industry There Are Link-Belt Plants, Sales Offices, Stock Carrying Distributors in All Principal Cities. Export Office, New York 7; Australia, Marrickville (Sydney); Braxil, Sao Paulo; Canada, Scarboro (Toronto 13); South Africa, Springs. Representatives Throughout the World.



Remove from carton and Metal-On is ready to install. Just snap on pipe and lock in place.



...the specially designed aluminum "snap strap" (containing vapor seal) is snapped on joint ...



. . . Metal band completes the assembly . . . provides perfect joint protection against vapor and weather. Available in many colors, the Metal-On band also serves color coding purposes.

Two men completed 660' Metal-On

New Johns-Manville Metal-On insulation is today's fastest and most efficient way to install high-temperature pipe insulation...and protective metal jacketing

Metal-On is still new! It is just months since its introduction—yet it has already been accepted by virtually every industry in which high-temperature pipe insulation needs protective metal jacketing.

One reason for this rapid, all-out acceptance is Metal-On's installation economy. A single package product that consists of high-temperature insulation and protective aluminum jacket—Metal-On entirely eliminates separate on-the-job metal application. In



fact—a section of Metal-On can be applied at least as fast as pipe insulation alone.

However important installation speed may be, it is but one Metal-On advantage! For Metal-On also ends guesswork in specifying aluminum alloys and jacket thicknesses. Its jacket measures an ideal .016ⁿ thick... of a high-quality aluminum alloy selected expressly for superior weather resistance . . . good appearance . . . and resistance to abuse and pitting.

Of course, Metal-On never needs painting. Won't rust. Is impervious to dirt, oils and grime. And, unlike corrugated metal jacketing, Metal-On has no dirt-

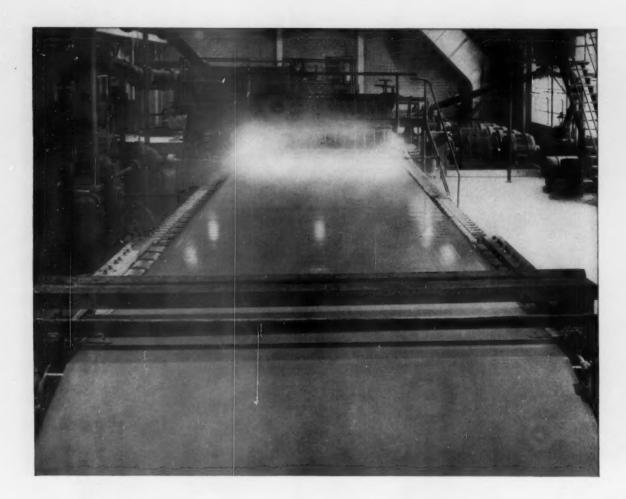
collecting grooves—its smooth surface stays clean.

Metal-On also provides top fuel savings and accurate temperature control, because its insulating element is Johns-Manville Thermobestos®, finest of all the calcium silicate insulations for temperatures to 1200F. The conductivity of Thermobestos is lowest of all insulations generally used in power and process industries.

To help you compare Metal-On with the insulation you're now using—let us send you the new technical data brochure, IN-217A. Write for it today. Address Johns-Manville, Box 14, New York 16, N.Y.

JOHNS-MANVILLE





A Complete Starch Line . . . tailor-made to your needs

Today's complex papermaking operations require a wide range of starches—starches specifically designed to do a particular job. You'll find that the complete starch line offered by Corn Products Company includes types for every phase of modern papermaking. These starches are available in so many varieties that they can literally be tailor-made to suit individual requirements and production problems of individual plants!

For example, in beater sizing, preferred starches for improved surface qualities plus excellent bursting and tensile strength, include the many varieties of Globe and pre-cooked Amijel. For calendar sizing, you'll find a complete line of Claro and Eagle starches, as well as Globe starches for enzyme conversion. In this operation, Globe and Excello dextrines and thin-boiling Foxhead starches are also used. For general coating, with good

viscosity at high solids content, use Claro and new improved Ten-O-Film starches.

And the research staff of Corn Products Company, largest in the industry, is constantly at work developing new products to meet the changing needs of modern papermaking.

Our technical representatives are completely versed in the problems that arise with wet end additives. Their impressive field experience and continuing research into starch, evidenced by frequent publications in trade and technical journals*, is always at your service. Take full advantage of the facilities and experience of the world's largest corn processors—call our nearest sales office or write direct.

Fine products for the Paper Industry: GLOBE® • EAGLE® • FOXHEAD® • CLARO® • AMIJEL® CORAGUM® • TEN-O-FILM® starches • GLOBE® • EXCELLO® • LAM-O-DEX® dextrines and gums.



CORN PRODUCTS SALES COMPANY 17 BATTERY PLACE, NEW YORK 4, N.Y.

*A reprint on the results of corn starch usage is available on request from our New York office.



How Hyster Trucks cut paper handling costs

Highly maneuverable Hyster SpaceSaver trucks handle heavy paper rolls at a profit-making pace because they have the fastest lift speed, shortest turning radius, and most effortless control system of any trucks in the 3,000 to 10,000 lb. class. Compare these Hyster advantages:

- POWER for handling capacity loads fast.
- HYSTAMATIC POWER SHIFT TRANSMISSION.
- MONOTROL CONTROL SYSTEM (on 3,000, 4,000 and 5,000 lb, Models).
- POWER STEERING shortest turning radius.
- Full line of PAPER HANDLING ATTACHMENTS.

You can speed handling, stack higher, cut costs with HYSTER paper handling trucks. Ask your Hyster dealer for a demonstration or write for brochure to Hyster Company, P. O. Box 847, Danville, Illinois.



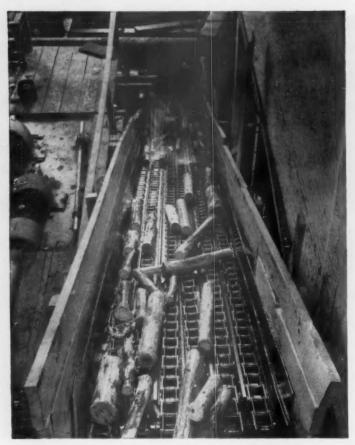
HYSTER COMPANY



ONLY HYSTER TRUCKS

... the "human engineered" control system that means higher production through increased operator efficiency. Monotrol pedal provides natural right foot control of forward-reverse shifting and speed, leaving the operator's hands free for full-time steering and load control. A Hyster exclusive available now on SpaceSaver trucks in 3,000, 4,000, and 5,000 lbs. capacity.

Factories: Parland, Ore. . Danville, Ill. . Pearia, Ill. . Kewanee, Ill. . Nijmegen, The Netherlands . Glasgow, Scotland . Sac Paulo, Brazil . Sydney, Australia (licenses)



For efficient pulpwood handling specify...

JEFFREY CHAIN

When it's time for chain replacement, consider these two facts:

- Jeffrey chain is designed for long dependable service—and quality controlled through manufacture from machining and treatment, to assembly and inspection.
- In most types and sizes, Jeffrey chain is interchangeable in dimensions with other leading makes. So getting Jeffrey dependability into your conveying is a simple matter.

Ask your Jeffrey distributor to supply your needs. The Jeffrey Manufacturing Company, 809 N. Fourth Street, Columbus 16, Ohio.











Double up and Catch up!

ALWAYS SOMETHING MORE YOU CAN DO WITH 'WORKHORSE' AMERICAN CRANES

Whenever there's any kind of lifting, loading or maintenance work to be done in your woodyard, there's never any reason why an American should be standing idly by. With interchangeable fronts and go-anywhere, do-anything maneuverability, American equipment is always ready to step up the production pace.

As on this Southern job, Griffith & Dyal of Mayport, Fla., find it practical and profitable to team fast working American 300 Series Crawler Cranes in the loading of flatcars. One American crane lifts the sling full of 4-ft. logs from truck to flatcar. The other slaps a huge concrete slab against any projecting logs, squaring up the load. Safer, faster loading . . . keeps a steady flow of pulp wood rolling at a more economical clip.

American equipment is expressly designed for time saving duties. American Cranes, from 12½-ton to 400-ton capacities, will help you keep ahead of schedule on all your jobs. For handling the most awkward loads with speed and assurance . . . for longer more efficient service . . . you can always count on the dependability of American cranes.

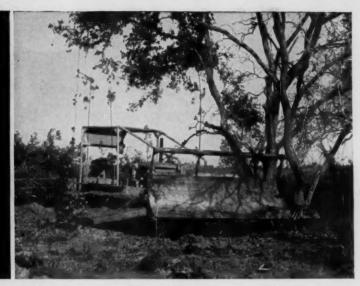
DERRICKS-HOISTS to 800 tons REVOLVER CRANES to 400 tons EXCAVATORS-CRANES to 2 yds.-60 tons LOCOMOTIVE CRANES

AMERICAN HOIST

and Derrick Company St. Paul 7, Minnesota AMERICAN HOIST PACIFIC COMPANY

Special materials handling equipment CROSBY-LAUGHLIN DIVISION Drop forged fittings

D7 with K/G Blade Increases Clearing Production 35% to 40%!



Packed with power, the D7 thrusts the stinger of the K/G blade through a thick tree trunk about 2 feet above ground level.



Down goes a weakened tree on the second pass. Then the D7 unit shears the stump at ground level in one pass or several.



D7 with K/G blade makes easy work of cutting and windrowing scrub oak. Increased production over straight blade: 35% to 40%.

Ocala Lumber Sales Co. of Ocala, Florida, prepares 700 to 1,000 acres a year for planting with pine. This Cat D7 Tractor with K/G blade handles the clearing job. When not engaged in site preparation, it clears fire lanes. Manager L. R. Jackson says: "The D7 with K/G blade is the best we have seen for this work. Compared with a straight blade, it increases production 35% to 40%."

For clearing that involves tree and stump shearing and windrowing, you'll find the D7 with K/G blade a big money-saver. The blade mounts on a "C" frame at a

28.5-degree angle with the tractor. A sharp, armor-plate stinger projects 30" beyond the blade. This is the business end... the pictures show how well it works.

For a complete picture of Cat track-type Tractors in site preparation, see your Caterpillar Dealer. He has on-the-job cost records covering such phases as tree and stump shearing, raking and windrowing, chaining, stump treatment and harrowing. Ask him to show them to you. Ask for a demonstration, too!

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

NEW D7 SERIES D TRACTOR!

The new D7 Series D is leader in its class. Here are some major improvements that pay off in high production at low operating cost. NEW TURBOCHARGED ENGINE packs 140 HP and 80% more tractor lugging ability than the previous model.

lugging ability than the previous model.

NEW DRY-TYPE AIR CLEANER removes at least 99.8% of all dirt from intake air during every service hour. Can be serviced in 5 minutes.
NEW LIFETIME LUBRICATED TRACK ROLLERS, carrier rollers and idlers need no lubrication until rebuilding, eliminate on-the-job lubrication.

NEW PRESSURE-LUBRICATED POWER TRAIN insures complete lubrication with filtered oil to transmission, bevel gear and pinion for trouble-free operation.

Along with these and other improvements, the new D7 Series D retains such time-tested features as the exclusive oil clutch, which delivers up to 2,000 hours—one whole season—without adjustment!

CATERPILLAR Calorpiller and Cal are Registered Tradomerks of Calorpillar Tractor Co



"My Homelite will really cut the pulpwood"

Proved by
Leslie
Weatherford

ANOTHER USER TESTIMONIAL FOR

HOMELITE

Leslie Weatherford in Shelby, North Carolina knows that Homelite chain saws are designed for tough production cutting. Now you can get famous Homelite dependability in the first high quality, low-cost, gear-drive bow saw — the Homelite WIZ.

Weighing just 20 pounds (less bow and chain) the WIZ is easy to carry to the job, easy to handle on the job. Its famous Homelite short-stroke engine delivers plenty of power for day-in-and-day-out cutting . . . power that whizzes through 18" trees in just 16 seconds.

Its big new 16" plunge-cut bow makes your job easier, eliminates stooping, gives you a pinchless cut.

Straight blades from 14" to 28" fell trees up to 4 feet in diameter. Also available with clearing bar and brush cutter.

PROOF — Here's what Mr. Weatherford told us: "My Homelite is the most powerful saw I have ever tried. It really will cut the pulpwood." See how the Homelite WIZ bow saw can help you! Ask your dealer for a free demonstration soon! While you're there, ask about the other professional saws in the full Homelite line.





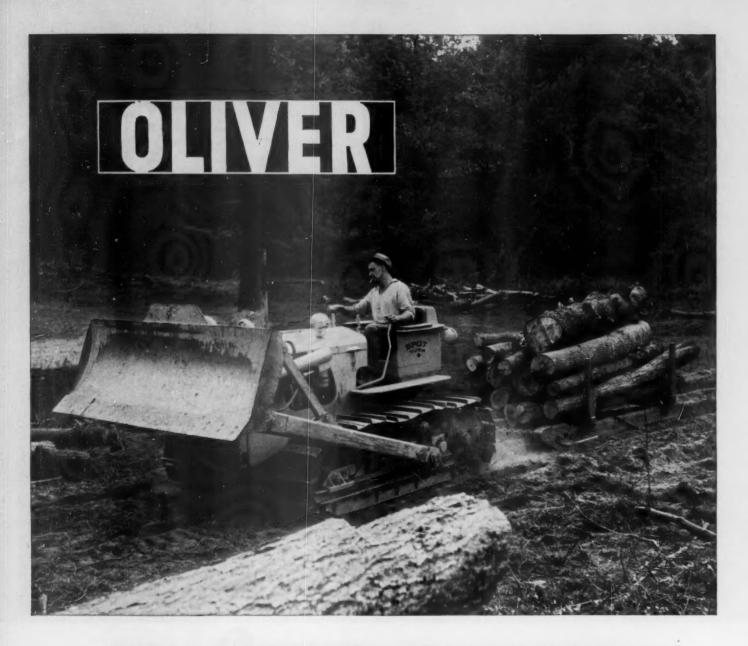
- * only 20°pounds, less bar and
- * fells trees up to 4 feet in
- * straight blades 14 28, 16 plunge-cut bow, clearing bar, brush cutter

As low as \$16950 FOR FACTORY



Think first of quality . . . think first of HOMELITE

HOMELITE A DIVISION OF TEXTRON INC., 7710 RIVERDALE AVE., PORT CHESTER, N. Y.



TEST IT...PROVE ITS PAY-LOAD POWER!



The Oliver OC-4 is a compact, speedy teammate of the OC-12 above. It, too, features "Spot-Turn" clutch steering. Four-speed transmission— $1\frac{1}{2}$ to $5\frac{1}{2}$ m.p.h. Full line of attachments: dozer, loader, winch, angleblade and others. Worktest it yourself—soon!

Oliver OC-12 with "Spot-Turn" steering brings more profits out of the woods

Give it the works, right on your job! Let the husky OC-12 crawler demonstrate its stamina, its eager power, its smooth handling. Then figure how much you can save on operating costs.

The OC-12 is built and powered to do the big jobs—skidding out the big loads, dozing access roads, building landings, clearing fire lanes. With new "Spot-Turn" clutch steering you get smoother control, shortest turns, less operator fatigue, more work done each day.

Your Oliver distributor will willingly arrange for a practical work-test. And once you get behind the controls of this brawny work horse, you'll see why the OC-12 is the best buy in its class.



a complete line of industrial wheel and crawler tractors and matched allied equipment

PULP & PAPER

Pulpwood Section

Wisconsin Firm Presents Large Tract to State



Voigt .. Stouffer .. Smith .. MacArthur .. Mead .. Seyberth .. Schorger .. Rahr

CERTIFICATE IS GIVEN STANTON W. MEAD (fourth from right), president of Consolidated Water Power & Paper Co., in recognition of the presentation of 20,000-acre wildlife area to the State of Wisconsin. Viewing the presentation were (1 to r) L. P. Voigt, Wisconsin Conservation Dept.; Russell D. Stouffer, Charles F. Smith and Arthur R. MacArthur, all of the Wisconsin Conservation Commission; Mr. Mead; Leonard J. Seyberth, Dr. A. W. Schorger and Guido R. Rahr, all of the commission.

More than 20,000 acres—many boasting magnificent stands of hard-wood and pine—have been presented to the Wisconsin Conservation Commission by Consolidated Water Power & Paper Co.

Commenting on the move, the American Pulpwood Assn. had this to say: "... It is refreshing to learn of an industry assuming an 'angel' role and granting outright title to a large tract of land to a state agency for recreational purposes." The APA was making reference to the fact that many industries today are being cast in the role of a villian in seeking to secure sites in favored recreational areas, particularly those in public ownership.

The acreage is located in the valley of the Little Eau Plaine River in three central Wisconsin counties.

In making the presentation, Stanton W. Mead, president of the Wisconsin Rapids firm, noted that the company had been buying lands in the area for almost a quarter of a century with the ultimate objective of creating a huge reservoir to supplement water on the lower Wisconsin River during low flow periods. When handicaps associated with land purchases caused a postponement of this project, he said, Consolidated realized the value of the property for wildlife

conservation purposes and offered the area as a gift to the state. The tract is to be known as the George W. Mead Wildlife Area. Mr. Mead was founder of Consolidated.

According to J. R. Smith, supt. of game management for the Wisconsin Conservation Dept., the area has great potential for development of prairie grouse, deer, geese and furbearers. Ditch banks already constructed in earlier drainage efforts and detailed engineering surveys completed by Consolidated will greatly facilitate future development, he said.

Originally, the valley consisted of conifer and hardwood swamps. Wildlife probably included species rare today, such as lynx and timber wolf.

The pine was cut prior to 1900. Land speculators and promoters followed the logger and organized an illadvised drainage district. Dredges slashed the innumerable ox-bows and switch-backs and made the river an open canal. Farming failed, and the area reverted to open marsh, brush and swamp.

Today aspen, elm, maple and lowgrowing brush occupy much of the land. Open marshes parallel and fan out from the river. Several extensive spruce and tamarack swamps are located along tributary streams. More than 38 miles of ditches and dikes, remnants of the drainage district, criss-cross the region. Farms occupy the better soils around the basin and within the project on higher lands.

Consolidated Water Power & Paper Co. will continue to maintain a high interest in the management of the area.

Quality Control of Sawmill Chips

. . . was the subject of a recent meeting at the Charleston, S. C. mill of West Virginia Pulp and Paper Co. The gathering was sponsored jointly by West Virginia and Simonds Saw & Steel Co. and was attended by 64 sawmill and equipment company representatives.

The importance of receiving clean high-quality chips was stressed by R. W. Stoertz, Charleston pulp mill supt. He advised that the three principal qualities desired in purchased chips are: (1) uniform size; (2) cleanliness, and (3) moisture content averaging 50%. Also on the program was Carl B. Newell, engineer for Simonds Saw & Steel, whose lecture on chipper care and preventive maintenance was illustrated by slides.

Examining chipper knives in the



Stoertz Chalfant Harrill

picture are Mr. Stoertz; H. B. Chalfant, Clarendon Flooring Co., and J. J. Harrill, Harrill Lumber Co. Also representing West Virginia Pulp and Paper were C. H. Niederhof, wood procurement mgr.; S. A. Hartin woodyard supt., and J. L. Tupper and W. W. Spain, also of wood procurement. The program was conducted by R. W. Parnell, chip program coordinator.

Developed to meet highest quality demands, wastewood chips have reached the stage where even the Foley cellulose mill accepts them, making a small phase of . . .



Buckeye's Exciting Forestry Plans

200,000 cultivated acres planned by progressive woodlands men; woodyard at Foley expanded to accept twice old capacity

Foley, Fla.

• Buckeye has its eye on the sparrow and not on the worm as far as its woodlands are concerned. In the next 20 years it plans to put 200,000 acres of Florida forestlands into pine planta-

Stretching eastward from Apalachicola to Steinhatchee and northward along the Chattahoochee River almost to the Georgia line, Buckeye Cellusee Corp.'s 800,000 acres of piney woods comprise one of the largest forest blocks along the lip of Florida.

Under extensive cultivation and experimentation by one of the most virile and active woodlands staffs in the South, this chunk of land will someday provide Buckeye's Foley, Fla. mill with most of its wood requirements.

Buckeye's first move after acquiring these lands in 1952 was to begin a timber inventory. It was completed in 1954. A reinventory is planned every 10 years based largely on aerial maps photographed from Buckeye's Cessna.

10,000 Acres per Year

Buckeye's most ambitious plan is establishment of 200,000 acres of pine plantations on prepared sites during the next 20 years. Although natural regeneration will be relied on for some portions of the property, Buckeyedeveloped planting methods will be used to plant slash pine on clear-cut and prepared sites.

The woodlands department is also experimenting with direct seeding methods to be used in areas where machine planting is impractical or impossible.

Buckeye's site preparation plans are the result of work carried out at the east Gulf Coast branch of the Southern Forest Experiment Station. These showed that slash pine thrived better on cleared sites than on uncleared lands. A definite correlation exists between soil moisture and degree of ground vegetation. Native growths, such as palmetto, gall berry, turkey, etc., sap most of the moisture from the sandy soil, create drought conditions for newly planted trees. In wet



BUCKEYE WOODLANDS STAFF is headed by manager W. D. Smith.

years, the station found, pine survival was 60%, 30% better than in dry years.

Old fields, it was learned, also offer excellent pine "pastures" because a great deal of the competing vegetation has been cut out. A growth investigation on old fields and wild sites in Florida revealed 25% more wood grew where lands had first been cleared.

Under direction of the reforestation



SPECIALLY-DESIGNED SEEDLING EXTRACTOR MACHINE (above) straddles seed bed, has six low-hanging seats. Seedlings are placed on conveyor that carries them to rear of the machine, where they are placed in sawdust and moss boxes. One-man carts are then pulled behind tractors (right) for planting of seedlings in prepared fields.



superintendent, this program is now in full swing. During the planting season, with specially-developed equipment like the Tygart self-propelled Tree Seeding Harvester this operation is run on a six-day week and delays are carefully avoided.

The most recent undertaking of the Buckeye foresters is conversion of some 90,000 acres of non-productive swampland. This program is expected to utilize every conceivable type of equipment.

Fire is omnipresent threat to Buckeye. Typical were the Moseley Hall fires of 1955, set by arsonists. They roared through 75,000 acres of lands. Buckeye fire crews are now equipped with Caterpillar D-6 tractors and Rome Mathis plows, work closely with state fire fighters on a tight radio network. An extensive road building program is now underway in those rough and tumble areas acquired since 1952. The company also keeps two Piper Cubs in the air on regular patrol to catch fires abrewing.

How Wood is Handled at Mill

With daily wood requirements at Foley increasing some 86% in one whack, great attention had to be paid to the existing woodyard facilities. Facilities for the storage of 11,000 cords of wood had to be made available adjacent to the woodyard, as well as additional space in the woodyard for 5,000 more cords.

To maintain high quality, wood is never permitted to age or rot on the pile, is used within 30 days of delivery. Wood use jumped from 750 cords of pine a day to 1,400 cords per day, 10 to 20% of which is hardwood. At present, Buckeye is getting its

wood 70% from private lands, 20% from its own holdings in north Florida and about 10% in chip form.

A new conveyor carries logs to a 12- by 45-ft. Fibre Making Processes drum and from there to a conventional sorting belt where rejects are rerouted through the drum. In addition to the regular debarker, a new mechanical ring debarker developed through cooperation of Buckeye engineers and Impco will be used when volume hardwoods begin to arrive at the mill.

This new debarker is the first of its kind. It has its own infeed and outfeed conveyor, depositing logs on the sorting belt. Although hardwood ring debarkers are common in the North, this marks the first time one is being used in the South, and considerable changes were made in it. One difficulty: During the winter lack of sap in the cambium layer causes bark to cling tightly to the wood. Painstaking measures are required to remove it.

Available ring-type debarkers were designed to handle 8-ft. logs, but none would take short Southern style 5-ft. sticks. Buckeye men observed an Impco debarker in action peeling frozen sticks in the North and asked Impco's engineers to consider redesigning to handle shorter sticks. Close cooperation between Buckeye and Impco resulted in modifications of existing barkers to do the job.

Engineers working with Triangle Construction Co. also designed a conveying system that features a variable speed accumulator for reject logs. A single operator controls this point so that the debarkers are always kept fully loaded, while rejects are sent back to this point and held until their

turn to go through the drum. Debarked logs are then conveyed automatically to the 6-ft. sorting belt for re-examination. Barker and conveyors are both operated by variable-speed drives.

Accepted logs are delivered to 700-hp 12-knife chippers. Conveyors to digesters, designed and built by Continental Gin Co., were lengthened and new ones constructed to handle delivery of chips to the new digester system. The existing off-type tripper was moved over the new digesters, and a new feed-through or off-type tripper was installed over the existing digesters.



SPECIAL DEBARKER was developed for Buckeye by its engineers and designers at Improved Machinery Co. It will handle short hardwood.

Before and After



SCALE MODEL of new-type log transporter developed in British Columbia which, its inventors believe, will prove popular in Eastern Canada for delivering pulpwood.



LOAD IS RELEASED automatically when lock holding stern frame together is triggered. Bow section may be detachable. All structural parts are of steel construction.

New type log transporter simply spreads apart to unload. Lock holding stern frame together is triggered automatically to release load. This is a scale model

A group of Vancouver, B.C., tugboat men and loggers have formed Seaway Industries, Ltd. to get construction of the new log transporter under way. Considerable interest in the new design has been shown because of its revolutionary principles.

The inventors believe that this new self-dumping barge or transporter should have ready acceptance in Eastern Canada's pulpwood industry and other areas—wherever it is necessary to move pulpwood by waterways, either deepsea or channel and lake.

The craft is still in the experimental stage and the tests have been carried out with miniature models, but the proposed commercial carrier would be big enough to accommodate at least 1,250,000 board feet of logs. Its length would be about 130 ft., width 50 ft. and depth 20 ft.

The craft consists of pontoons with false bottoms extending from a detachable bow, all structural parts being of steel. The pontoons form the sides of the carrier and the base of the triangle they form—the stern—is in two sections that are self-locked. The area between the pontoons encompasses the logs and when the load is to be freed the lock is tripped.

Logs Support Themselves

The steel pontoons are kept afloat by a series of watertight bulkheads served by pumps. The floating logs that comprise the cargo support themselves. The floating pontoons that form the sides of the barge are the only device that holds the logs together.

If required, a self-traveling crane can be installed along the top of the pontoons, but the loading of the logs

does not actually require a crane. The craft is merely maneuvered alongside a wharf and stockpiled logs are pushed into the open area between the pontoons by tractor. The difference in draft between a loaded transporter and an empty one is only two feet, because of the buoyancy of the logs.

With the logs in place, the craft may not actually need a bottom, but a bottom frame is provided to give an underwater streamline effect. Stanchions will be fixed along the sides so that if the load is light it can be built higher. Provision has been made for a cargo hatch at the bow to carry diesel fuel or other supplies.

Seaway Industries, Ltd., 540 Burrard St., Vancouver, B.C., expects to have the first barge under construction during the next few months.

Industrial Forestry Moves Far in Quarter-Century

The remarkable accomplishments achieved in the Douglas fir industry has been objectively chronicled in a recent report by W. D. Hagenstein, executive vice pres. of the Industrial Forestry Assn. This presentation issued in recognition of this silver anniversary year of the industry's organized forestry activities, is available from IFA, 1410 S.W. Morrison St., Portland 5, Ore.

In 1934 the forest industry in Oregon and Washington employed 86,000 people. This had almost doubled by 1958, and industry wages increased more than eight-fold. During the same period the annual value of forest products increased seven-fold—from \$297,000,000 to \$2 billion.

Regional log production then was 5.4 billion ft., now almost double that. Timber inventory was then estimated

at 546 billion ft.—slightly more now despite having harvested nearly 200 billion ft. during the past 25 years.

The then-estimated 4,360,000 acres of non-restock land is now less than half that amount. Current annual growth was then estimated at 2.4 billion ft.; it's double that now although 40% of the region's forest land is still occupied by old-growth timber that is not adding current growth.

The industry then employed 100 foresters; now 12 times that many. When forestry became economic, the industry naturally employed men trained in its sciences and arts to

manage its land.

This period has seen a reduction of destruction by forest fires from 72,000 acres per year to 10,650 acres in 1958. This marvelous reduction in osses reflects the increased expenditures for protection against fire. Less than \$700,000 was spent for protection of private and state lands in 1934; by 1958 the average annual expenditure was in excess of \$5 million, a 7½-time increase.

Cumulative planting by all owners

in Oregon and Washington through 1934 was only 66,410 acres. In the 25 years to 1958 this was increased to 866,351 acres, an average of 32,000 acres per year for a quarter-century.

Mr. Hagenstein states in his report, "The Douglas fir region is now supplying the people of the United States with one-quarter of their forest products each year. It can continue to do so if we make progress during the next quarter-century as we have in the last. This requires: (1) Increased attention by all private owners to their opportunities in forestry and improved wood utilization; (2) recognition by the public that it must play its part through better management; (3) in-

tensified research in timber growing and wood utilization; (4) deeper public understanding of the necessity for equitable taxation of private forests, and (5) continuation of the favorable public response to the plan for keeping and maintaining Washington and Oregon green.

"Above all, it will take farsighted leadership, lots of hard work, effective cooperation between the forest industry and government and increased recognition of the necessity of managing under multiple use more and more of our lands, both private and public, to provide the products and services our arising population wants and needs."

Economies, Profits Are Dual Goals of Southern Chip Use Program

Better utilization of wood left-overs is of growing importance in the South. Sawmills and veneer mills are now linked with pulp plants and other users of wood chips in a program that means economies and higher profits for both groups.

A Case in Point: The Savannah, Ga. asphalt roofing plant of Certain-Teed Products Corp. formerly purchased whole logs for the production of chips used in the manufacture of dry felts.

The plant recently switched over to purchased chips and now receives chips daily from veneer mills in Baxley and Wadley, Ga., each about 100 miles from Savannah. The gumwood chips are produced from cores, slabs and other wood waste.

Fast, Efficient

An unusual outdoor storage and conveying system handles these chips at Savannah. It includes a hoist for the rear dumping of semi-trailers and is designed to move the chips quickly into storage as the trailer unloads and then to reclaim the chips as needed on a 24-hour basis. The system was designed and installed by Link-Belt Co.

Chips are stored in a concrete hopper 70 ft. long and 14 ft. wide. The base, which tapers to 3½ ft., is steellined at the bottom and accommodates a double-strand flight conveyor. The hopper is divided into two areas, the first 15 ft. for unloading and the remaining 55 ft. for storage. The two sections have 15,000-cu. ft. and 10,000-cu. ft. capacities respectively.

The flight conveyor travels along the bottom of the hopper, then up an incline to a surge bin over a 72-in. dia. rotary table feeder. It then returns over the top of the storage bin, making two vertical right-angle turns at the truck-loading end.

The rotary table feeder has two plows, thus permitting the chips to be fed directly into the plant on a 14-in. belt conveyor or discharged onto a 24-in. inclined belt conveyor and carried back to the top of the main storage bin.

This conveyor arrangement is said to permit chips to be (1) carried directly into the plant; (2) delivered to storage, or (3) recirculated whenever necessary.

The rotary table feeder regulating the feed of chips to the Certain-Teed plant is a smaller version of the 17-ft. dia. units that L-B furnishes to pulp mills. An adjustable feed collar immediately above the table determines the volume of material delivered.

The lower edge of the collar is helical in shape; it is closest to the table directly behind the plow and farthest from it directly in front of the plow. This permits equal quantities of chips to flow under the collar around the complete circle and spread onto the table as it revolves. The material is then plowed off in a steady stream into a discharge chute.



MADE TO FIT THE NEEDS of Certain-Teed's asphalt roofing plant in Savannah, Ga., is this outdoor storage and conveying system for handling purchased chips. Double-strand flight conveyor travels beneath the storage hopper and emerges at right to deliver chips to surge bin over rotary table feeder. Belt conveyor can return chips to storage hopper, where they are distributed by top run of flight conveyor.

PULP & PAPER

Pulpwood Section

Hardwood for Fulpwood South Plantings Up

Value of pulpwood produced in the South during 1958 totalc. \$404,660,000—an increase of 2% over 1957. The report was made recently by the Southern Pulpwood Conservation Assn. and based on a 12-state production survey by U. S. Forest Service Experiment stations in Asheville, N. C., and New Orleans, La.

N. C., and New Orleans, La.

Highlighting the survey was the fact that more than 16% of total production was comprised of hardwood. This usage has been increasing steadily over the past several years.

Georgia led the South with total purchases of pulpwood valued at \$81,-860,000. Alabama followed with a crop valued at \$52,480,000. Each of the remaining 10 states except Tennessee and Oklahoma realized a crop in excess of \$25,000,000.

The report showed a continued trend toward more efficient utilization of trees harvested. An all-time high of 9% of the total production of pine and hardwood pulpwood came from the use of sawmill slabs and veneer cores.

Plantings at Record High

Throughout 11 Southern states the tree planting program of the pulp and paper industry and pulpwood suppliers accounted for more than 373, 000,000 seedlings during fiscal 1958-

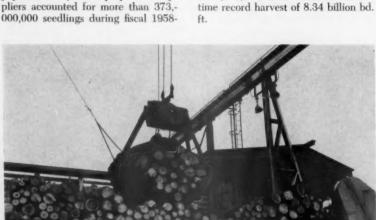
59. This represented an increase of 24,000,000 over the previous record. More than 55% of the trees planted (207,700,000) were produced by the 18 industry-operated nurseries in the region. (Ten years ago pulp and paper accounted for the planting of 56,000,000 trees in the South.)

Plantings by states were as follows: Alabama, 43,670,000; Arkansas, 5,524,500; Florida, 87,000,000; Georgia, 83,000,000; Louisiana, 21,000,000; Mississippi, 25,735,000; North Carolina, 30,589,300; South Carolina, 28,789,000; Tennessee, 5,211,100; Texas, 25,000,000; Virginia, 17,000,000.

USFS Receipts at Record

National forest timber sales and other land uses—under multiple-use management—pushed Forest Service receipts in fiscal 1959 to a record \$124,067,682. This was an increase of approximately \$30,000,000 over the previous fiscal year's income.

According to a U. S. Dept. of Agriculture report, products and uses of national forests accounted for \$122,-148,445 of the total. Land utilization projects brought in \$1,919,237. As usual, the big income-producer was the sale of timber, which realized \$115,808,877. This reflected an all-time record harvest of 8.34 billion bd. ft.



Modern Pulpwood-Handling at Everett, Wash.,

. . . where Scott Paper Co. consumes approximately 720,000 bd. ft. per day. This Size 16 grapple (one of two in use at the mill) handles 8-ft. logs at the rate of 50,000 cords per year. The units, manufactured by Blaw-Knox Co., operate from a 7½-ton 50-ft. span bridge crane. Each has an open spread of 10½ ft. and is equipped with an equalizer to prevent twist. Capacity of each "grab" is one cord. (The mill produces a daily 750 tons of bleached sulfite pulp and more than 300 tons of paper.)



Coordinating Fire-Fighting Activities

. on Crown Zellerbach Corp.'s Clatsop (Ore.) tree farm is this datacrammed dispatch board and map. Demonstrating the board's function is its designer, C. L. Wood, the farm's resident forest engineer. At his fingertips he has a two-way high-frequency radio, a telephone and an up-to-date report on all northwest Oregon fireweather conditions. The map, varnished so that grease pencil notations may be made, has magnetized markers indicating lookouts, topography, patrol headquarters, guard stations, fire suppression equipment, roads, etc. An accurate fix can be made on any fire location in the area. The board thus provides a centralized communications point so necessary during a fire situation.

Yale Seminar to be Held at Longview

Yale Univ.'s School of Forestry will stage its 12th Industrial Forestry Seminar at Longview, Wash., October 12-23 in cooperation with Weyerhaeuser Co.

Nine subjects will be presented by qualified discussion leaders, who will emphasize the business and financial aspects of forest management. Trips are planned to Weyerhaeuser tree farms and logging operations and through the firm's manufacturing plants in the area.

Enrollment is limited to 20 men whose experience will qualify them for participation in the discussions. Additional information may be had from: Prof. Z. W. White, Yale School of Forestry, 205 Prospect St., New Haven 11, Conn.

Weyerhaeuser Film

The story of modern forestry in the Pacific Northwest is dramatized in a new motion picture produced by Weyerhaeuser Co. It is available for free showing.

"Tomorrow's Trees" may be requested from Weyerhaeuser Co., Tacoma Bldg., Tacoma 1, Wash.



Stainless Steel mesh triples life of cylinder wires of paperboard machines

AT CHAMPION PAPER AND FIBRE CO., CANTON, N. C.

United States Steel Corporation — Pittsburgh
American Steel & Wire — Cleveland
National Tube — Pittsburgh
Columbia-Geneva Steel — San Francisco
Tennessee Coal & Iron — Fairfield, Alabama
United States Steel Supply — Steel Service Centers
United States Steel Export Company

United States Steel



In 1951, Champion's Carolina mill installed Type 316 Stainless Steel mesh on the cylinders of their paperboard machines. These cylinders turn in 0.7% consistency pulp solution as the mesh picks up pulp and deposits it in layers on a felt where it is formed into a sheet of paperboard.

During operation, the mesh is constantly turned in the chlorinated bleached stock pulp solution. This action corroded and weakened the metal previously used for this mesh, making it necessary to replace the corroded mesh every 18 months.

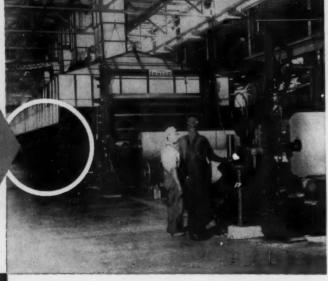
The new Stainless Steel mesh lasts four to five years, and because the Stainless Steel resists corrosion and retains its strength, it reduces maintenance. Reduced maintenance means increased operating time and production.

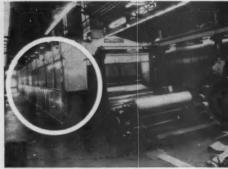
Don't let corrosion hamper your production. Build and repair with Stainless Steel. USS Stainless Steel is available from your U. S. Steel representative or your local Steel Service Center.

USS is a registered trademark

ROSS Engineered Atmospheres for Better Processing Air Systems

A Cost-Cutting Suggestion...





A competent Ross Engineer with full knowledge of hoods and their functioning, will be glad to call, discuss your problem and then give you a firm quote on transforming your present hood into the well-known Ross-Hooper

You may not be in position to completely modernize ... or to completely step up your production to get lower per-ton costs...but if you are operating with an open hood over the machine dryer section, look into the cost-savings and greater production possible through completely enclosing that section.

One of the paper mills in the South took this step in connection with its corrugating medium machine and came up with some substantial savings in costs, enough to pay for the job in about a year. Here are the measurable gains:

- ★ production increased (10%)
- ★ steam requirements reduced (7%)
- ★ exhaust air and fan power reduced (40%)
- more uniform moisture control across sheet
- * more comfortable working conditions

NOTE: the change-over was accomplished during a two week summer shut-down

Again may we suggest: if you have an open hood over the dryer section, ask to have a Ross Engineer study your machine layout and report as to the probable savings that will come when you install the Ross-Hooper Hood.



THE MIDLAND-ROSS GROUP OF COMPLEMENTING SERVICES

J. O. ROSS ENGINEERING

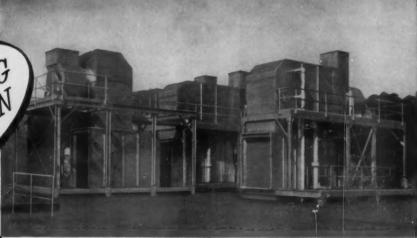
Division of Midland-Ross Corporation

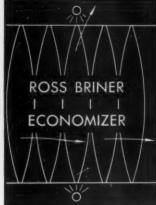
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Engineered Atmospheres for Better Processing







Extract and Re-Use the Heat in Exhaust Vapor

Two cost-saving possibilities are open to you:

- 1. use the extracted heat to help warm the incoming air for machine use
- 2. use the exhausted heat to help warm the water going in to the process

In fact, the heat content of your exhaust vapor may permit you to adopt both cost-saving steps simultaneously.

Check your costs for heating drying air and mill water. If they seem to have reduction possibilities, ask a Ross Engineer to make a study of your operations and to see where and with what advantages the Ross-Briner Economizer can best fit into your production layout. This kind of work is well within his experience and competence for this is dealing with one facet of the fundamental concept of 'Engineered Atmospheres'... in this case, the utilization of heat units carried in the exhaust air-vapor stream.



J. O. ROSS ENGINEERING THE MIDLAND-ROSS GROUP **Division of Midland-Ross Corporation** OF COMPLEMENTING SERVICES

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on an all-inclusive technical service50% or 73% caustic soda...new data on cold caustic steeping



How to get technical help *in depth*

Whenever you have a problem involving pulp or paper technology,

we stand ready to help you in two ways.

We can place a file of technical service bulletins right at your finger tips, and we can send a man from our technical staff to work with you.

Our technical men can give you engineering help. For example, they can help you set up a new caustic handling system or revamp an old one—even give you design assistance.

Often our servicemen, on periodic visits, can spot and help you correct operating troubles before they become serious. They can give you ideas on your safety program.

Whenever you want help, call our

Whenever you want help, call our nearest sales office or write us. We can send a skilled man to you on very short notice.

Or send for technical bulletins. A few are listed in the coupon.



How to make better newstype paper from hardwoods

You can get a lot of helpful facts on the cold caustic steeping of hardwoods from a new paper entitled Special Considerations Toward Improvement of Cold Soda Pulping Process.*

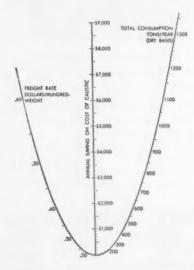
It gives results from experimental and practical work with southern red oak, white oak, soft maple, elm, ash, and yellow birch pulps. It tells you how to improve the paper and boards made from these hardwoods.

A number of charts and tables summarize data on such liquor absorption factors as vacuum, pressure, particle size, moisture content, surfactants, and presteaming.

*A reprint of this paper prepared by Kenton J. Brown, Chemical Engineer of the Forest Products Laboratory, Forest Service, U. S. Department of Agriculture, is available as our Bulletin No. 252. Check the coupon.

50% to 73% — some save, some don't

To estimate quickly whether you can save by switching from 50% to



73% liquid caustic soda, simply draw a line on this nomograph. Start at your freight rate and draw to your annual consumption in tons, dry basis. Your approximate savings on freight will appear where you intersect the center line.

From this figure, subtract annual depreciation for dilution equipment. (We'll be glad to advise you on cost of this equipment.)

If you still show a saving, you might consider the big switch seriously.

For more facts on the economics of 50% and 73% caustic, check the coupon for a copy of our pocket-size Caustic Soda Buyer's Guide.

or more information, check here and mail with your name, title, company nd address.
Bulletin 101, Caustic Soda Buyer's Guide
Bulletin 102, Caustic Soda—Engineering and Handling Guide
Bulletin 220, Chlorine Dioxide Bleaching Today
Bulletin 205, A Comparison of Processes for the Generation of Chlorine Dioxide in Pulp Mills

HOOKER CHEMICAL CORPORATION

☐ Bulletin 252—Cold Soda Pulping Process

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Special Duralba • Bleached Hardwood Sulphite

New Hardwood Pulps have

OPACITY BRIGHTNESS BULK BETTER FORMATION BETTER QUALITY

for fine papers and fine specialty papers

PULP

NEWS

... you must start with the best pulp. If you are seeking that important extra measure of quality . . . just write us about your pulp problem. Address Dept. PC-10, Boston office.

150 Causeway Street, Boston 14, Mass. Mills: Berlin and Gorham, N. H. Sold in Canada by Brown Forest Products, Ltd., Montreal, Que.

BROWN COMPANY 150 Causeway Street Boston 14, Mass.

Please tell us more about the new hardwood pulps.

PULP & PAPER - October 1959

PC-10 COMPANY ADDRESS CITY. STATE

If you have...

FABRI waferstock

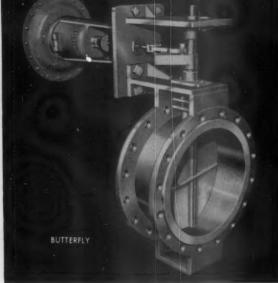
valves

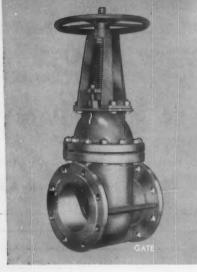
you can have the same proven quality

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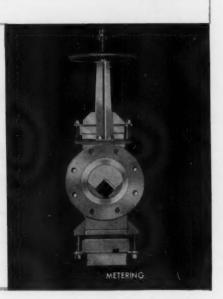




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PULP & PAPER

Strictly Personal

Midwest

"New Fibers" will be the subject of Leslie L. Warner, Owens Corning Fibreglas Co., as he addresses the October 1 meeting of PIMA's Michigan div. at the Hotel Harris, Kalamazoo. . . . William Race has resigned as board chairman and director of Sutherland Paper Co., Kalamazoo. . . Nicolet Paper Co., subsidiary of Milprint Inc., has named four new directors: Shy Rosen, senior vice pres. of Milprint; Huch Cullman, asst. treas. of Philip Morris Inc.;



Judson Mealy, Regional Mgr. for Hinde & Dauch

Mr. Mealy, formerly plant production mgr. for a New York converter, has joined the Hinde & Dauch div. of West Virginia Pulp and Paper Co. as a regional production mgr. He will be in charge of production at plants in Detroit and in Cleveland, Eaton and Sandusky, Ohio. Mr. Mealy is a chemical enginering graduate of M. I. T.



Geo. H. McGregor and Daughter
—Her Flying Job Ended . . .

because she was marrying Leonard Max Dobis on Sept. 12 at St. Kevins Catholic Church, Los Angeles. Wauna Mary was stewardess on plane which took her father, Mr. McGregor, general manager of Crandon Paper Mills, Fort Madison, Iowa, to Pacific Northwest recently. For many years Mr. McGregor chairmanned TAPPI's sulfite committee and he formerly was with Minnesota & Ontario Paper Co. and Weyerhaeuser Co.

CLIFFORD H. GOLDSMITH, asst. to the vice pres.-operations, Philip Morris, and HER-BERT B. WENBERG, asst. mgr. of Nicolet.

MERWIN B. CLAPP, formerly of Chicago Bridge & Iron Co.'s general sales staff, has been transferred to the Chicago district office as a contracting engineer. . . . WILLIAM A. ENOUEN has been named asst. to the comptroller of Mead Corp., Dayton, O. . . . WILLIAM R. HASELTON, vice pres. and resident mgr. for Rhinelander Paper Co., has been elected gen. chairman of the Wisconsin Paper Industry Information Service, one of the most active community relations organizations for pulp and paper mills in the country. Elected treas. of WPIIS is a man who will be close to Bill Haselton, the Rhinelander firm's treas., J. H. Fen-NEMA. . . Also at Rhinelander: two new chemists have joined the staff. Rob-ERT SWEITZER, a graduate of the Syracuse Univ. pulp and paper school, who has been assigned to the research dept.; and IOSEPH BOYLE, assigned to the mill laboratory, who came from Allied Paper Corp. and Western Michigan Univ.

PROF. E. W. SCHOENBERGER, dean of students at the Institute of Paper Chemistry, will discuss "Communications" at the October 22 meeting of PIMA's Miami Valley div. at the Manchester Hotel, Middletown, O. . . . H. MACGREGOR TUTTLE Jr. has been named exec. director of the Waxed Paper Institute Inc. and the Waxed Paper Merchandising Council Inc., both of Chicago. He was formerly exec. asst, to the president of the National Confectioners Assn. . . . PAUL W. ATWOOD, president of U B S Chemcial Co., has been named to the board of directors of A. E. Staley Mfg. Co., Decatur, Ill. The Cambridge, Mass. firm was recently acquired by the Illinois corn and soybean processor.

Three men have been promoted at the Wisconsin Rapids div. of Consolidated Water Power & Paper Co.: Mike Fahrener, relief tour foreman, becomes tour foreman of the enamel paper machines to succeed Leo Reiman, named asst. paper machine supt.; Clarence Reinert was named painter foreman and Warner H. Dekarske asst. electrical foreman.

ALFRED KAUFFMAN, a former president of Link-Belt Co. and a director 37 years, died recently in Chicago, aged 79. . . . H. W. GAECKLE has been named vice pres. and gen. mgr. of the Dracco div. of Fuller Co. He was formerly gen. sales mgr. . . . WILLIAM M. NEWTON has been named assoc. director of corporate warehousing for Mead Corp. He will report to ROBERT P. ARVOLD, recently appointed coordinator of central planning, white



Robert L. Leaf, Jr., Heads Shawano Paper Mills Operations

Mr. Leaf, a vice president of the company, takes over direction of production as well as his previous responsibilities for development, succeeding to the duties of Jesse H. Trassk, who is partially retiring, but continuing in advisory capacity. Born in St. Paul, later a resident of Milwaukee, Mr. Leaf attended Lawrence College, U. of Wisconsin, and the Institute of Paper Chemistry, where he earned his master's degree. A new boiler installation has increased flexibility of production for Shawano. Charles N. Egan, of Green Bay, Wis., is president and general manager.





Michael

Meyer

Two Veterans Return to Crystal in Key Posts

RODNEY H. MICHAEL has returned to Crystal Tissue Co., Middletown, Ohio, as the first controller in the history of the firm. He will supervise all general office operations, including accounting, cost, payroll, billing, statistics and office management. Mr. Michael joined Crystal in 1947 as cost mgr. and 10 years later joined the staff of Raymond Bag Corp. as controller.

In another move, HARBY E. MEYER has

In another move, HARRY E. MEYER has returned to Crystal to become paper machine supt. He will be in charge of the machine and beater rooms. Mr. Meyer is a 40-year veteran in papermaking and has worked at Crystal on three different occasions, beginning his career in the industry at the Middletown mill. For the past 16 years he has been supt. for both Sitrue Inc. and Dunn Paper Co. In his new capacity he will be responsible to John Burnsall, vice pres. in charge of manufacturing.

PULP & PAPER

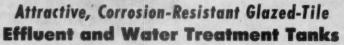
Strictly Personal

. Also at Mead: FRANK G. Brinster, formerly exec. vice pres. of Hurlburt Paper Co., South Lee, Mass. subsidiary, becomes director of budgets. ... New directors of the Fibre Box Assn. include D. C. Shepard Jr., gen. mgr. of Menasha Wooden Ware Corp., and LESTER R. EDWARDS, vice pres. of Owens-Illinois Glass Co. and gen. mgr. of its Paper Products div.

THOMAS P. FITZPATRICK has been named Midwest district sales mgr. for the Coatings & Adhesives dept. of Borden Chemical Co.

CARROLL TAYLOR, paper mill and corrugating technical service representative for Hubinger Co., has been transferred from Keokuk, Iowa, to Dayton, O. At the same time, Howard Peper, long a sales service representative, was named to the new post of mgr. of paper mill sales. He will headquarter in Chicago. . . . W. J. ("BILL") BLACKLEY, president of Beveridge Paper Co., Indianapolis, celebrated his 50th year in the industry.

Appointment of Roy E. Goodwill Jr. as mgr., gen. products div. sales, central region, and of WILLIAM R. CARLYON as mgr., gen. industrial sales, Detroit district, has been announced by Allis-Chalmers Mfg. Co. . . . CHARLES W. BEAUCHAMP has been named marketing mgr. and will head up all sales activities of Link-Belt Co.'s Ewart plant in Indianapolis. KEN-DRICK H. HICKMAN becomes sales mgr. The appointments follow retirement of FOREST H. SPENCER.-Don W. Zeigler.







As the final step of construction, Stebbins workmen carefully wash down the exterior of the tanks with acid.

In this view of tank floors under construction, note the clean, smooth joints - the mark of good workmanship. Note the variety of tile shapes. Horizontal and vertical steel reinforcing is shown in the walls which will be solidly filled with concrete as work progresses.

Complete Service — Design, Installation, Maintenance

WRITE FOR BULLETIN AET-59

Engineering and Manufacturing Company WATERTOWN N.Y. . PENSACOLA, FLORIDA

STEBBINS ENGINEERING CORP. - TOWER BLDG. SEATTLE, WASH. CANADIAN STEBBINS ENGINEERING & MANUFACTURING CO., LTD. TOWN OF MOUNT ROYAL MONTREAL 9 . MERCHANT EXCHANGE BLDG. VANCOUVER

SINCE 1884 ation and Servicing of Linings and Tile Tanks Specialists in Design, Instal









Smith

Champion Establishes **Production, Services Staff**

A four-man general production services staff has been established in the operations group of Champion Paper & Fibre Co., Hamilton, Ohio.

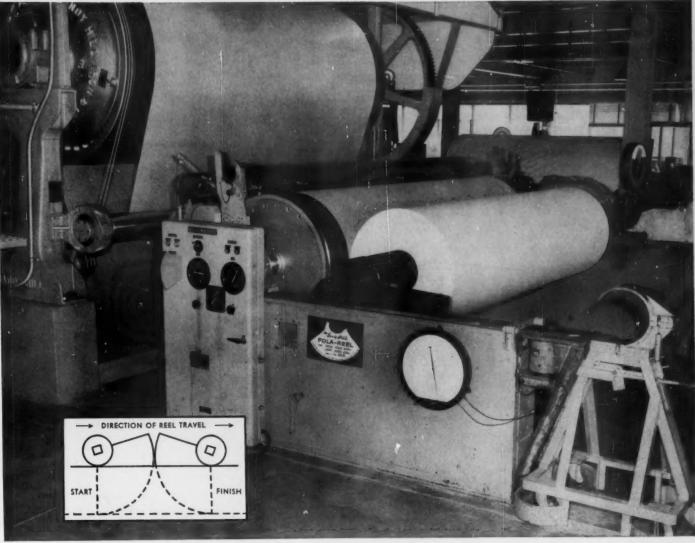
Members of the new group, as announced by exec. vice pres. Karl R. Bendetsen, are: Joseph Piggot as director of coated products; Malcolm Lyon as director of pulp manufacturing; J. E. Hall as acting director of paper manu-HALL as acting director of paper manufacturing, and Keister Smith as asst. to

the director, coated products.

Mr. Piggot was formerly coated papers Mr. Piggot was formerly coated papers product mgr. in the product management dept. of the pulp and paper manufacturing div. Mr. Lyon previously served as associate director of the research and development div. Mr. Hall was a specialist on Fourdrinier machine operations in the pulp and paper manufacturing div. Mr. Smith was formerly a coated paper specialist in the product management div.

cialist in the product management div.

At the same time it was announced that ROBERT FORREST has been named to the newly established position of asst. director, general plant enginering. He was mgr. of enigneering research and develop-



A BRAND NEW REEL CONCEPT...

THE SANDY HILL Rola-Reel

Sensationally new and far ahead of the parade, the Sandy Hill Rola-Reel already is building a record of proven performance.

Customers acclaim the substantial reduction in paper loss at the reel, and also the improved firmness and evenness of winding.

The unique quadrant reel carriage reduces friction by substituting rolling for sliding motion, resulting in a new accuracy in control of nip pressures. Finished reel automatically discharges to back of the reel stand, the carriage immediately returning to receive new spool. The finished roll of paper may be rolled directly onto skid or unwinding stand, thus requiring no crane.

Dial indicator showing reel diameter, a weighing device giving roll weight right at the reel, and a panel for fingertip control of reeling are optional equipment. Sandy Hill also builds lightweight reels, **Pope-type** constant speed reels, and the **Dualode** for heavy duty pulp service.

WRITE FOR
DESCRIPTIVE BOOKLET
AND COMPLETE
TECHNICAL DETAILS



SANDY HILL

HUDSON FALLS, N. Y.

Dr. Lee F. Hawley Dies

Dr. Hawley, one of the founding pioneers of the U. S. Forest Products Laboratory in Madison, Wis., and a noted research chemist, died in August at a Madison hosiptal. He was 77.

In 1909 Dr. Hawley came to Madison as a chemist-to help organize the federal laboratory set up by the U. S. Forest Service in cooperation with the Univ. of Wisconsin. He had joined the U. S. F. S. in 1907. Dr. Hawley was co-author with Dr. Louis E. Wise, of the Institute of Paper Chemistry, of "The Chemistry of Wood," one of a series of American Chemical Society publications.

PIMA Reports Vice Pres. Assignments

A. C. McCorray of St. Regis Paper Co., Tacoma, Wash., president of Paper Industry Management Assn., has announced assignment of division responsibilities to the five PIMA vice presidents. Each vice pres. will assume supervision of two of the association's 10 divisions:

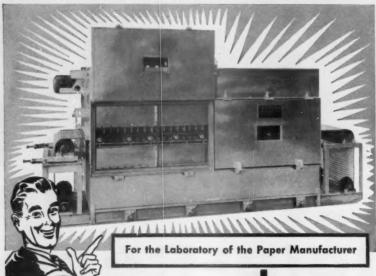
Tom S. Coldewey (St. Joe Paper Co.), first vice pres.—Southern and Southeastern divs.; C. Ives Geiring (Sealright-Oswego Falls Corp.), second vice pres.—Michigan and New York-Canadian divs.; Bemis P. Wood (Strathmore Paper Co.), third vice pres.—Connecticut Valley and Northeastern divs.; Glen T. Renegar (Container

Corp. of America), fourth vice pres.— Miami Valley and Pennsylvania-New Jersey-Delaware divs., and LAWRENCE MURTFELDT (Consolidated Water Power & Paper Co.), fifth vice pres.—Northwestern and Pacific Coast divs.

Correction

In PULP & PAPER's announcement of TAPPI's International Pulp Bleaching Conference that is to be held in Chicago in 1960 (September, page 76), the technical program chairman was erroneously identified as R. J. Richter of Kimberly-Clark Corp. The correct name is R. J. Auchter.





- widens the scope of your pilot operation.
- makes initial runs to test market.
- allows wide range of paper formation and finish.
- opens up new avenues for product development.
- extremely adaptable as a dry and cure unit.
- permits exploration of the new coating techniques.

Write for complete specifications

Available in two models to handle 24" web. GAS OR STEAM FIRED!

Model L 4

 Two four-foot long drying zones.

Model L 8

 Two eight-foot long drying zones.



William A. Moggio Named By-Product Production Manager

... at the Rhinelander Paper Co.'s Lake States Yeast and Chemical Division, Rhinelander, Wis. This is the successful sulfite waste liquor by-product plant which Rhinelander acquired from the Lake States Sulfite Pulp Mfgrs. Research League some years ago. J. M. HOLDERBY is manager of the By-Products Division at Rhinelander. Mr. Moggio was formerly chief chemist at East Texas Pulp & Paper Co. and worked with the National Stream Improvement Council for several years. He earned a bachelor's and master's degrees at Rutgers University.

Northeast

PHILIP CODDINGTON, gen. mgr. of Carpenter Steel Co.'s Alloy Tube div., retired recently after 17 years of service. He has been retained as a consultant.

JACOB I. FISHER, formerly production control mgr., Riegel Paper Corp., steps into new post of divisional purchasing agent for the specialty products division. HARRY SINGLEY JR., formerly acting purchasing agent, has been named purchasing agent for the paper mills in New Jersey. Both men will headquarter in Milford. N.I.

There's many a happy face at the sight of Wesley P. Bauver, sales rep for The Bauer Bros. Co., who has returned to active duty in the Northeast after more than a year of recuperating from injuries suffered in a plane crash.

ERIK UNGERN has joined the Cel-Fibre Division of Personal Products Corp., tissue producers of Milltown, N.J., as asst. pro-

JOIN THE INDUSTRY...INVESTIGATE THE NEW TECHNIQUE OF HIGH VELOCITY DRYING



A Leader in High Velocity Drying Since 1946

Why "Umpteen" different suppliers?



Allis-Chalmers Can Save You Time
and Money with Coordinated Engineering
and Teamed Equipment

Allis-Chalmers offers you all of these advantages:

- A broad line of mechanical and electrical equipment.
- Coordinated engineering—geared to match diversified Allis-Chalmers products to your specific needs.
- Application help for you or your consultants.
- Undivided responsibility for performance.
- Continuing field service.

And, of course, having only one supplier elimi-

nates the many conference hours, the complications of delivery and installation scheduling, the phone calls, telegrams and voluminous correspondence associated with buying from a combination of suppliers.

Get the complete story from your A-C representative or write Allis-Chalmers, Milwaukee 1, Wisconsin.

Allis-Chalmers
Products for the Pulp and
Paper Industry

Centrifugal pumps, rotary compressers, moters, control, Texrepe drive equipment, screens, slakers, kilns, turbine-generators, condensers, switchgeer, water conditioning equipment, materials handling equipment.

Fexrope is an Allis-Chalmers trademark.



PAPER

Strictly Personal

duction mgr. He was a mill supt. in his native Finland after attending the Paper Institute in Darmstadt, Germany. He worked for five years with Scott Paper Co., helping them set up new mills in Mexico and England, and was technical director of Lee Paper Co. EDWIN A. HANNA is mill supt. at the Milltown plant, a former Scott division mgr.

JOSEPH P. CORBIN, planning engineer with the central engineering dept., pulp and paper div., St. Regis Paper Co.,

moves to the staff of J. A. McDermott, general mgr., pulp and paper div., working with the company's printing paper division mills from Deferiet, N.Y. . . . DR. ARTHUR M. STERN transfers from West Virginia Pulp and Paper Co's, Covington research laboratory to Washington, D.C. to open an office as head of microbiological research for West Virginia. . . . PAUL M. PETERSEN, formerly Westvaco supervisor of training at its Mechanicville, N.Y. mill, now heads the recruitment, de-



James M. McClung, Plant **Engineer at Oxford**

Mr. McClung, who was incorrectly identified in last month's issue, has succeeded LEON A. FIELD as plant engineer at the Lawrence, Mass. mill of Oxford Paper Co. Mr. Field recently retired. Mr. McClung was formerly asst. plant engineer.

velopment and safety section of its personnel dept.

O. P. Russell has been appointed special assistant to ROBERT R. HOWARTH, executive v.p., of Columbia Box Board Mills, Inc. . . . M. JAMES CAMPBELL is now asst. to the vice pres. of Allied Chemical's Solvay Process Div.





Martin

Zuckerman

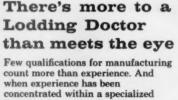
Martin Joins Hudson; **Zuckerman Promoted**

Zuckerman Promoted

Hudson Pulp & Paper Corp. has appointed Bruce W. Martin vice pres.-manufacturing. He was formerly with Diamond Gardner Corp., where he held positions as administrative vice pres. of the Gardner div., Midletown, Ohio, and vice pres. of manufacturing of Gardner Board & Carton Co. He has also been associated with Union Bag-Camp Paper Corp., Savannah, Ga., as gen. mill supt.; the Filer div. of American Boxboard Co., and Gaylord Container Corp. In his new post Mr. Martin will be responsible for the organization and operation of Hudson mills and converting facilities in Augusta, Maine; Palatka, Fla.; Bellows Falls, Vt.; Pine Bluff, Ark.; Wellsburg, W. Va., and Carteret, N. J. At the same time, Hudson Pulp & Paper directors announced the promotion of

directors announced the promotion of Irwin A. Zuckerman to the post of exec. vice pres. He was formerly vice pres. in charge of sales for consumer, industrial charge of sales for consumer, industrial and container products and also served as asst. to the president. He joined the firm in 1946 and has held positions in purchasing, product planning, sales management and marketing. In 1955 he became vice pres. and head of the consumer products div





line of endeavor it adds value to the product.

Lodding Doctors carry that extra value derived from experience experience accumulated over thirty years of specialization in the manufacture of doctors, doctor blades, blade holders and their accessories. During this period, Lodding has built and installed doctors for every conceivable doctoring application, under all conditions and of every type and size, up to and including the Great Lakes Paper Company's 340 inch newsprint machine.

Installations of Lodding Doctors are found in nearly every paper mill in this country and in many mills abroad. Each was precision engineered and precision manufactured for the specific roll being doctored.

Doesn't it make sense to rely on specialized experience? Most mills have found that it does. Next time, get Lodding Doctors. Then you'll profit too.





Now Allis-Chalmers brings its 85 years of pump experience to the short-coupled vertical turbine-type field. This addition not only rounds out industry's most complete single source for pump installations, it offers many advantages wherever liquids are to be pumped. Standard sizes for heads up to 400 ft or more, and capacities ranging from 20 to 8000 gpm.

Pressures can be increased by simply adding a stage to the existing pump without increasing space requirements. Equipment and installation costs are low. Motor and discharge nozzle are supported by a single, small foundation. There's no need for suction pipe, interlock controls or priming equipment. Allis-Chalmers hollow-shaft motors remove the danger of open couplings.

Many advantages — Self-priming • eliminate suction piping costs • save space, motor support and discharge nozzle are integral • low first cost • increase pressure easily • operate quietly • low maintenance with one stuffing box • no motor flooding.

Many applications — Water systems, irrigation, condenser systems, bilge and sump service, dry docks, fire equipment, filter washing, recirculation, transfer pumping, process pumping, cooling condensers and diesel engine jackets, air conditioning, caisson and mine dewatering, general-purpose pumping.

Allis-Chalmers pump experts will be happy to tell you about this new addition to an outstanding line. Contact your A-C representative or distributor, or write Allis-Chalmers, General Products Division, Milwaukee 1, Wis.



A-1163-PP



7 important features help solve valving problems

The MONOFLANGE MARK II is built for tight shut-off at 150 lbs., is ideal for throttling service, and versatile in application. This is a Henry Pratt Market Oriented product . . . ALL NEW . . . built to answer industry's specific needs for this type of valve.

You will want the new MONOFLANGE MARK II Catalog. Write for your copy of bulletin 18-IX.



Creative Engineering for Fluid Systems Monoflange MK-II

RUBBER SEAT BUTTERFLY VALVE

HENRY PRATT COMPANY
319 W. VANBUREN ST., CHICAGO 7, ILL.
Representatives in Principal Cities



Dan W. Manson Joins Oxford

Dr. Manson, a June, 1959 ph.d. graduate of the Institute of Paper Chemistry (U.S.A.) joins Oxford Paper Co., Rumford, Maine as fundamental research group leader. Prior to completing his doctorate he spent eight months with the research dept. of Billeruds AB, Sweden.



Gould Steps Up at CZ

Leslie W. Gould has been appointed an asst. vice pres. of Crown Zellerbach Corp. and mgr. of its Eastern div. to succeed the late King Wilkin. Mr. Gould was formerly a Gaylord div. vice pres. He will headquarter in New York, N. Y.

Gail Posson, formerly asst. plant mgr. at the Thames River, Conn. plant of Continental Can Co.'s Boxboard & Folding Carton div., has been appointed plant mgr. He replaces John H. Fettinger, who is retiring after 47 years with Gair. . . Henry J. Roehner Jr., has been appointed finishing mgr. in charge of shipping and converting at Finch, Pruyn & Co. Inc. He joined the engineering staff in June 1958. . . . Dr. J. K. Dixon has been appointed director of research and development for American Cyanamid Co.'s Industrial Chemicals div. He joined Cyanamid in 1933 at Bound Brook laboratories.

Walter S. Rooney, "dean" of Albany Felt Co. salesmen, died recently at the Glens Falls, N.Y., hospital after a prolonged illness. He joined the firm in 1918.

Election of ENGELBERT F. T. KRICHELS as vice pres., manufacturing, and of JAMES M. BURT as vice pres., sales, of Hurlbut Paper Co., South Lee, Mass., has been announced by E. A. SITZER, pres.

KARL M. GUEST has been appointed asst. mgr. of manufacturing at Brown Co., Berlin, N.H. His responsibilities will cover both kraft and sulfite mill.

-Maurice R. Castagne.

New Officers for Maine-New Hampshire TAPPI

Chairman of the section for 1959-60 is PROF. A. J. CHASE of the Univ. of Maine, Orono. Vice chairman is C. T. BOCKUS, Eastern Corp., and sec.-treas. is H. E. PRATT, Pejepscot Paper Co.

Elected to the exec. committee for oneyear terms are Edward N. Poor, Hudson Pulp & Paper Corp.; R. J. Martin, Fraser Paper Ltd., and B. A. Taylor, James A. Taylor & Son. For two years: Jack F. Wright, National Aniline div., Allied Chemical Corp.; P. M. Goodloe, Brown Co., and M. C. White, Oxford Paper Co. For three years: Dan Bail, Great Northern Paper Co.; R. E. Perry, Scott Paper Co.; L. R. Adkins, Waterfalls Tissue Corp., and H. W. Osgood, S. D. Warren Co.

Convey, Gen. Sales Mgr. at Bolton-Emerson

F. RICHARD CONVEY, formerly northeastern region mgr., has been named gen. sales mgr. for John W. Bolton & Sons Inc. and its Emerson Mfg. Co. div. He succeeds HAIGH M. REINIGER, who resigned recently as vice pres. in charge of sales following five years with the firm.

It was also announced that JOHN W. BOLTON III has been promoted to director of marketing services.

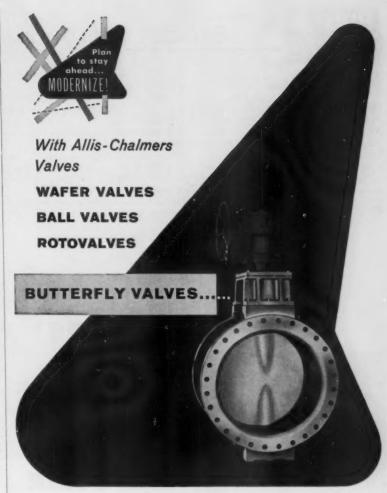
Frank Egan Dies

Frank W. Egan, founder and chairman of the board of Frank W. Egan & Co., died July 39 at 67 years of age. Previously a vice president of John Waldron Corp., he founded the Egan company in 1946 with his sons Edward F. and Lawrence W., president and vice president. He was considered an authority on paper coating and laminating.



William L. Schnorbach Will Manage New Mill in Georgia

His father helped to start the kraft industry in the Middle West and Bill held top management and engineering positions in the Filer City, Mich. mill his father helped build. Bill Schnorbach will be resident manager of Continental Can's new bleached board mill at Augusta, Ga., as announced here last month. He headed the engineering for this new mill and other expansion projects in the South by Continental's Robert Gair Division. The Augusta mill starts up in 1960.



To help solve your fluid and gas control problems, the broad line of Allis-Chalmers butterfly valves gives you:

Uniform Control In All Positions — You get consistent flow control through all positions in the normal regulating range. The flow curve within the broad control range is a straight line semi-log characteristic. Cam driven positioners can furnish other characteristics.

Fast Regulation and Closure — Speed of regulation and closing can be as fast as 1/10 second, or as long as system conditions require!

Minimum Pressure Drop Saves Power—In open position, the streamlined vane simulates Venturi action. Pressure drop is less than in many other valve types, helping to hold down your pumping costs.

Compact, Light Weight — Compact design and light weight permit more concise, space-saving layouts, cut construction and in-place costs.

For further information on Rotovalves, and butterfly, wafer and ball valves, contact your nearest A-C valve representative, or write Allis-Chalmers, Hydraulic Division, York, Penna.

RESEARCH DESIGN
Hydraulic Division HYDRODYNAMICS

Rotovalves • Ball Valves • Butterfly Valves • Free-Discharge Valves

Hydraulic Turbines & Accessories . Pumps . Liquid Heaters



PULP & PAPER

Strictly Personal

Southern

The highest honor accorded by Olin Mathieson Chemical Corp. to one of its member mills is the President's Safety Award. It recently was won by the Film div. of the Ecusta Paper div. at Pisgah Forest, N.C., for going 2,555,500 manhours (597 working days) without a disabling injury. Congratulations are certainly in order. . . . Edwin J. Spiegal Jr., asst. to the vice pres. and gen. mgr. of Crown Zellerbach Corp., has been ap-

pointed asst. vice pres. for administration of the Gaylord Div. . . . Ecusta Paper div.'s research and development dept. has added Spencer R. Arrowood, Lawrence P. Bauer Jr., and Rocer Lemar Russell to its staff, according to director Milton Shur.

EDWARD C. GUIDROZ, who recently was in charge of the construction of International Paper's mill at Pine Bluff, has been promoted to asst. to division chief engineer and will call Natchez his headquarters. He has been on I.P.'s rolls since

1924, is a graduate of Louisiana State Univ. O. B. SMITH, a veteran construction engineer with International, will be construction engineer in charge of the \$4.5 million expansion program at the company's Louisiana mill. Work will include two high-pressure boilers, a 20,000-kw turbine and a new lime kiln.

CLYDE GIBBONS has retired after 39 years with Gaylord Container, his last assignment as southeastern gen. supt. in Atlanta. Also making news for Gaylord in Atlanta: FREDERICK STEIN, printing foreman, who recently celebrated 30 years with the company. . . . HERMAN DYKEMA has been named southern representative for Kalamazoo Tank & Silo Co. He'll make his h.q. in Atlanta. KARL GOTHNER, sales mgr. of Rosenblad Corp., New York, has named Adams Engineering Sales, Decatur, Ga., as sales representative in Georgia, Florida, Mississippi, Louisiana

Speeds
roll wrapping!



Since 1906

LAMB-GRAYS HARBOR CO., Inc.

HOQUIAM, WASHINGTON, U. S. A.







Velte Kirkpatrick Wilkinson



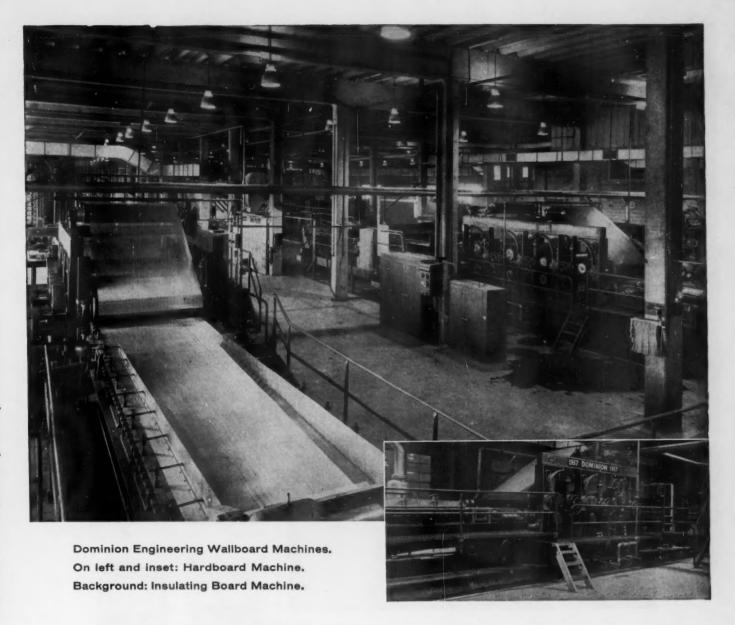




l War

Promotions at Canton, N.C., Mill

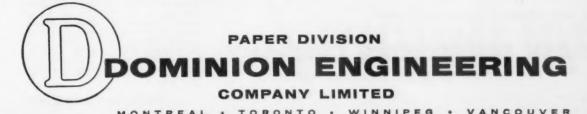
As announced by A. M. FAIRBROTHER, vice president and Carolina Division m nager, Champion Paper & Fibre Co., Carl. T. Welte and Willes Kirkpatfick have been named assistant division managers. Mr. Welte joined Champion in 1933, and Mr. Kirkpatrick who has been with the firm 35 years, recently was asst. to the mgr. Replacing Mr. Welte as production manager is James E. Wilkinson, who has served 24 years at the Carolina Division, and succeeding him as process controls department manager is W. J. Bull. He joined Champion in 1937. Harold Morris, former asst. production mgr. at Champion's Texas Division, has become division engineer at the Canton plant, replacing Cedric A. Stone, who his duties as Champion's director of general plant engineering, general office, Hamilton, O., while at the Carolina Division.



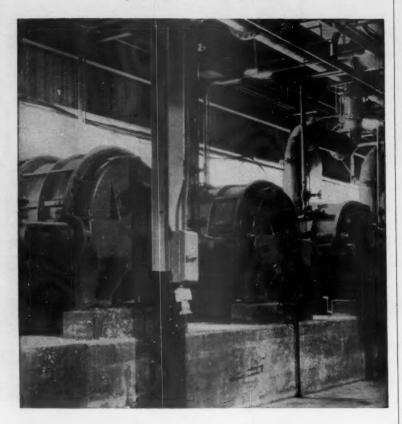
Designed and produced by DOMINION:

Hardboard and Insulating Board Machines, installed at the Saskatoon Mill of the Prairie Fibreboard Company.

DOMINION-Canada's foremost supplier of Pulp, Paper and Board Machines since 1920.



What, actually, do Vacuum Pumps on paper machines handle?



Paper mill engineers know that it is actually a mixture of air and water vapor, but the custom of rating vacuum pumps in terms of air capacity alone causes this important fact to be frequently overlooked.

The presence of this water vapor causes a considerable reduction of the effective air handling capacity of any vacuum pump except the Nash. In the Nash Vacuum Pump the bulk of this water vapor is effectively condensed, due to the Nash operating principle. The air handling capacity of the Nash is therefore not reduced.

That is one of the reasons why Nash Vacuum Pumps are standard in over a thousand leading Paper Mills.

NASH ENGINEERING COMPANY

443 WILSON ROAD, SO. NORWALK, CONN.







Jenkins

Woods

McCaughan

Crossett Promotes Nine

Crossett Paper Mills, Crossett, Ark., re-ports the promotion of nine men to com-plete the organization of its new produc-

W. B. Jenkins, paper mill supt. in the kraft mill, moves up to a new position, asst. mill mgr. of the kraft operation. F. E. Woods steps up to the new post of asst. mill mgr. of the bleached foodboard mill; he was asst. paper mill supt. of that in-stallation. A. G. McCauchan is now kraft paper mill supt. after serving there as asst. supt.

asst, supt.

Other promotions included: L. C. Thomas to asst. supt. of the bleached foodboard mill; Q. W. VANCLEAVE to asst. paper mill supt. in the kraft mill; W. W. Webster to asst. pulp mill supt. of the foodboard mill; E. F. WALLING to machine room tour foreman in the foodboard mill; D. C. Roceas to tour foreman in the foodboard pulp mill, and L. B. LINDER foodboard pulp mill, and L. B. LINDER to pulp mill tour foreman in the board mill.

and southern Alabama; Paul A. Chapman & Associates, Chattanooga, Tenn., as representative in Tennessee, North and South Carolina, northern Alabama and western Virginia.





Minix

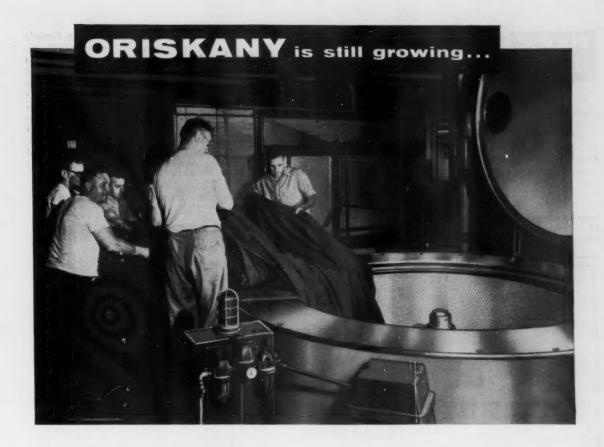
Freeman

Two Promoted at Heald

Reorganization of the maintenance dept. at the Heald div. of Mead Corp., Lynchat the Heald div. or Mead Corp., Lynch-burg, Va., has resulted in the promotion of Henry H. Minix to electrical supt. and the transfer and promotion of Oliver I. Freeman to the newly created post of

mechanical maintenance supt.

Mr. Minix joined Mead in 1937 as an electrician helper at the Heald div. In his new post he will be responsible for all electrical engineering, electrical mainte-nance and instrumentation. Mr. Freeman was formerly asst. supt. of maintenance at the Kingsport (Tenn.) div. He joined the firm in 1951 following graduation as a civil engineer from the Univ. of Tennes-



Automatic Extractor speeds felt production...

After the washing process, this giant centrifugal-type Extractor spins wet felts damp-dry in minutes... keeps production moving at a fast pace at Oriskany. Fully-automatic controls close the cover, time the spinning cycle, stop the machine and raise the cover. The Extractor unit and cover are stainless steel to assure absolute cleanliness. The machine has ample capacity to handle felts for the largest paper machines in the world.

Modern equipment right down the production line is only one of the reasons for the consistent quality and performance of Oriskany Felts. You can count on our skilled design engineers to evaluate your felt requirements and make sound recommendations. You can depend on our competent laboratory staff if you have a specific felt problem. This helpful service starts with the Oriskany Sales Engineer who calls at your mill. Ask him about it the next time he visits you.



H. WATERBURY and SONS COMPANY . ORISKANY, NEW YORK

PULP & PAPER

Strictly Personal

W. Young has been promoted to machine room supt., replacing J. Larsen in Rayonier's Jesup, Ga. pulp mill. Mr. Young came to Jesup from Shelton, Wash., where he has been employed for more than 30 years. . . . Mack A. (Red) Higdon, onetime paper mill supt. at Southern Paperboard Corp., has been named gen. supt. of Continental Can Co.'s Hopewell, Va. mill. Ross Miller has been promoted from pulp mill supt. to director of maintenance, and engineering and Michael J. Dunford has been moved

up to pulp mill supt. from asst. supt.

Quick flashes from around Dixie: Bob Bowen, asst. mgr. of Continental Can's Hodge, La. mill, has resigned. He'll go to Alton Boxboard. . . . Joseph C. Brown Jr. is gen. mgr. of North Carolina Pulp Co., and W. R. Owens has moved up from paper mill supt. to newly created position of mill production mgr. H. B. Campbell becomes paper mill supt.

Gulf States Paper Corp. has announced new assignments for the new board mill at its Demopolis, Ala. mill, due for start-up shortly: Jim Tucker, formerly chief engineer, becomes supt. of the mill, heading a team of four new supervisors including Dave Bond, who has been at Demopolis since it was under construction and moves from materials control director to board mill foreman as do Cy Darcey, who has been with Gulf States for 33 years; Cavit Butler, formerly with St. Regis at Pensacola; Leo Youngchild, formerly with Crown Zellerbach, and Loris Crow, who has worked for Fiskeby Fabriks Co. in Sweden and also for Potlatch Forest Inc. at Lewiston, Idaho, as a tour boss.—William F. Diehl Jr.



"Down to the Sea . . . "

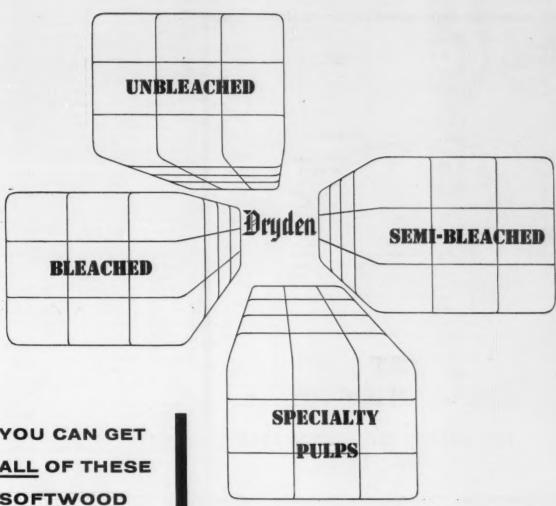
"CAPT." MALCOLM OTIS, resident mgr. of Crown Zellerbach Corp.'s West Linn, Ore. mill, marks the launching of the 36-ft. cruiser *Emjayo*. The craft was built by Mr. Otis and his son, Dr. Jim, a dentist, from plans designed by a prominent Seattle naval architect. The project required 6,500 hrs. over a 4½-yr. period. With accommodations for six persons, the *Emjayo* has an 11-ft. beam and 3-ft. draft, is powered by special twin Chrysler Crown 135-hp engines. It cruises at 12 knots and is equipped with a two-way radio and depth sounder.

Pacific

E. W. "STACE" CAREY, vice pres. for marketing of Fibreboard Paper Products Corp. has been elected a member of the board. He is a native of Australia and at one time was with United States Gypsum Co. . . . ROBERT E. HALLORAN has been named Pacific Coast sales mgr. of the Tubular Products div. of Babcock & Wilcox Co. He succeeds H. F. Lefferty, who is retiring after 40 years with the firm.

David Hartley, analytical and solutions chemist at the Camas mill of Crown Zellerbach Corp., has been made a development chemical engineer. . . . The appointment of three major western gear distributors for David Brown Inc. of San Leandro, Cal., have been announced by Stuart Walters, gen. mgr. They are Bearing Engineering & Sales Co., Salt Lake City, Utah; Montezuma Bearing Co., Albuquerque, N.M.; Industrial Electric Service Co., Arcata, Cal. another distributor is Monarch Supply Corp. of San Leandro and San Jose.





YOU CAN GET **ALL OF THESE** SOFTWOOD **KRAFT PULPS** FROM DRYDEN

We are sure you know about the high quality of Dryden Bleached Sulphate Pulp. But did you know that you can also make Dryden your single source of supply for many other kraft pulps?

Dryden Unbleached-widely recognized for its high tensile strength-for everything from twisting tissues to boxboards.

Dryden Semi-Bleached—exceptionally strong—in demand for such grades as sandpaper and shotgun shell papers, as well as twisting tissues.

Dryden Specialty Pulps-formulated to meet many unusual requirements. (We produce pulps for anti-tarnish papers and capacitor tissues, for example.)

We suggest you try a variety of these pulps as well as Dryden Hardwoods. We would be glad to make up a single boxcar shipment of several of our pulps for you to try in your own operations.

DRYDEN PAPER COMPANY, LIMITED

DRYDEN, ONTARIO, CANADA

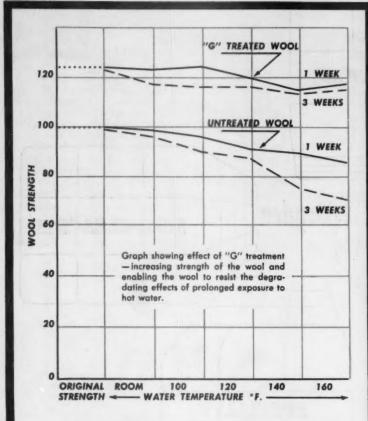
SOLD BY: Anglo Paper Products, Ltd.

2055 Peel Street, Montreal 2, Quebec

SALES REPRESENTATIVES IN THE UNITED STATES:

Northeastern Paper Sales, Inc.

400 Madison Avenue, New York 17, N. Y. 20 North Wacker Drive, Chicago 6, III.



THE EFFECT OF HOT WATER ON FELTS

New papermaking techniques often require new felt treatments.

In recent years board and roofing mills have been going more and more to higher furnish temperatures and placing more exacting demands on their felts. And hot presses are also hard on wool.

Mill tests show that a higher than normal furnish temperature causes felts to lose strength, which loss of strength sets the stage for felts to stretch and narrow, lose their resiliency, fill up sooner and, finally, to wear out faster.

Orr "G" Felt Developed and Proved in Service

To the already widely used Orr-Chem line of felts to resist acids and the An-bac line to counteract bacteria, Orr, some three years ago, added the "G" treated felt for use where hot water poses a felt problem. See the chart.

THE ORR FELT & BLANKET COMPANY PIQUA, OHIO

OLIVER P. MORGAN has been named technical director of Weyerhaeuser Co.'s Springfield (Ore.) Pulp div. A 22-year veteran with the firm, he has been chief chemist at Springfield since 1949. Succeeding Mr. Morgan is DONALD E. ALLEN, a chemical engineering graduate of Oregon State College, who joined Weyerhaeuser in 1949. In another Springfield appointment, WEAVER R. STILES becomes machine room tour foreman. He was formerly paper machinetender. . . . George W. HOLT has been appointed to the newly created position of mgr. of new product development in the Packaging Group of Fibreboard Paper Products Corp.

Puget Sound Fabricators Inc., Seattle, has named Howard R. Smith vice pres. of sales. He will have responsibility for sales to the pulp and paper industry. James H. Morgan has joined the engineering staff of Northwest Filter Co.

Boise Cascade Corp. adds two new members to its boards: Hall Templeton, president of Valsetz Lumber Co. and Herbert A. Templeton Lumber Corp., and James E. Bryson, exec. vice pres. of Valsetz.

James D'A. Clark, a Northwest forest products industry consultant and formerly a research assoc. at the Institute of Paper Chemistry and engineering and technical mgr. for Scott Paper Co., has accepted a professorship at Oregon State College, where he will direct graduate studies in pulp-paper science.

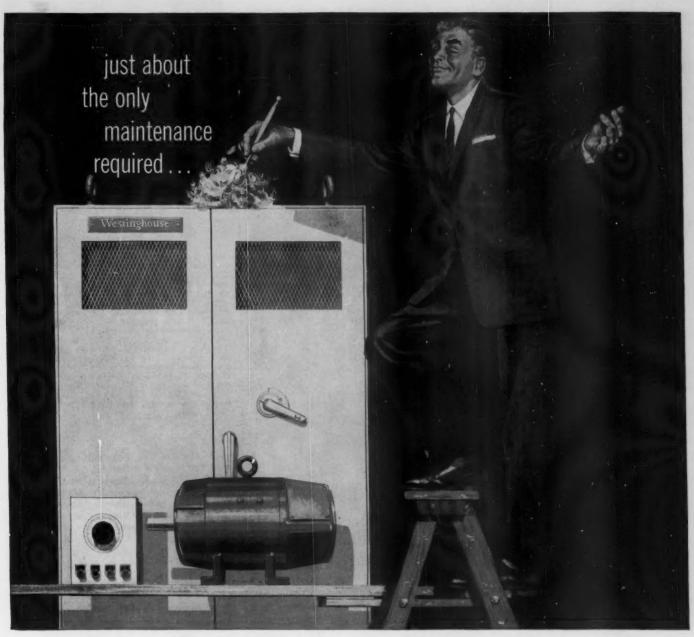
H. C. Hamin Jr. succeeds C. A. Morgan as sales mgr. of Fibreboard Paper Products Corp.'s Northern Packaging div., Seattle, Wash., the latter retiring after nearly 40 years with the firm. . . . Robert Raymond, Crown Zellerbach, Los Angeles, promoted from junior to senior industrial engineer. Bert Zurcher, technical asst. to the paper machine supt. at the CZ St. Helens div., becomes asst. technical supervisor. Hub Franson, pulp shift supervisor at the St. Helens div., to technical asst. to the mechanical supervisor.

L. H. HOFFMAN, 75, nationally recog-



Publishers' Promotes Smith

Roger O. Smith, formerly technical asst.
to the paper mill supt., becomes asst. mill
mgr. at Publishers' Paper Co. in Oregon
City, Ore, He succeeds the late Fred J.
Weleber.



New Type AVR static-powered adjustable-speed drive

With the new Westinghouse static-powered AVR adjustable-speed drive, maintenance costs are virtually a thing of the past. Power magnetic amplifiers replace the conventional motor-generator set . . . there are no moving parts to weaken from wear and fail . . . you enjoy all the proven benefits of static control components.

Providing smooth, stepless speed control, new AVR drives are designed for use with motors from 1 to 200 hp... give you constant torque over an 8 to 1 speed range, or 10 to 1 with modification... are also available with constant-horsepower speed ranges.

New Westinghouse AVR drives are completely engineered, assembled and factory tested. They provide higher operating efficiency with greater reliability than heretofore obtainable from conventional drives. They simplify installation and reduce floor space required...sometimes as much as one-half the area of conventional M-G set drives.

Ask your Westinghouse sales engineer to show you exactly where and how you can benefit from new Westinghouse adjustable-speed drives. Or, write Westinghouse Electric Corporation, P.O. Box 868, Pittsburgh 30, Pennsylvania.

J-22144

Also available . . . the standard Westinghouse AV drive with motor-generator type conversion.



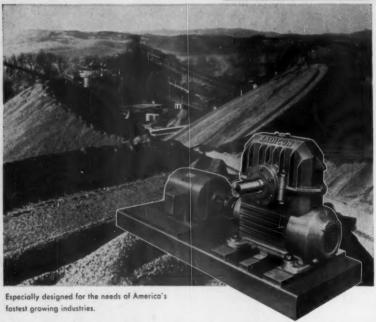
YOU CAN BE SURE ... IF IT'S Westinghouse

WATCH "WESTINGHOUSE LUCILLE BALL-DESI ARNAZ SHOWS" CBS TV FRIDAYS

DAVID BROWN

at work around the world





Just Position and Set Six Bolts...

the new RADICON COMPLETE DRIVES

"Eliminate drive design problems with the versatile new Radicon Complete Drive—just position—set six bolts and you're ready for service."

There's no do-it-yourself involved. Simply select the drive (easy as a gearmotor)—and set! Radicon reducers and motors are already carefully shimmed and aligned on heavy fabricated steel base plates of double box construction, firmly ribbed for rigidity. This means minimum stress at the flexible coupling—low maintenance, with complete versatility for service.

Fan-cooled Radicon Speed Reducers, such as type RHU in the above Complete Drive, are being specified for replacement and OEM in many industries these days. They have learned that Radicons are designed, not for show – but for rugged work in all extremes of temperature, dust, dirt and rain

Immediate delivery 3" to 12", all standard ratios from 5:1 to 60:1. Radicon complete drives supplied by all authorized David Brown factory branches and distributors.



D BROWN, INC.

999 Beecher Street, San Leandro, California (TWX 0A452U) (LOckhaven 9-7525)

> 6025 Atlantic Blvd., Maywood, Calif. 1224 S. W. Morrison St., Portland, Oregon

Gear Products for: Mines, paper and pulp mills, chemical plants, food processors...conveyors, hoists, agitators, screens, deckers, filters, canning machines, and other industrial equipment.



Joe Blake Named President Of Pacific Alloy Corp.

For many years, Joe Blake, as sales rep. of Electric Steel Foundry Co. has been well known in pulp and paper mills of the Pacific Coast, especially during his years in the Seattle office of Esco. He was recently elected president of Pacific Alloy Corp., in El Cajon, Calif., after it was purchased by Esco. He also continues as Southwest sales manager for Esco, with headquarters in Los Angeles.

WALTER H. DUNN who has guided Pacific Allow since its incention in 1944 will

WALTER H. DUNN who has guided Pacific Alloy since its inception in 1944, will serve as its vice pres. and gen. mgr. Vice pres. OSCAR EGGEN remains in the same capacity. The board of directors is composed of Mr. Blake, Mr. Dunn, R. W. DEWEESE, CHARLES E. HANEY and HENRY T. SWIGERT of ESCO, and JOHN P. APICELLA, attorney.

nized builder of West Coast pulp-paper mills, died August 8 at Portland, Ore.

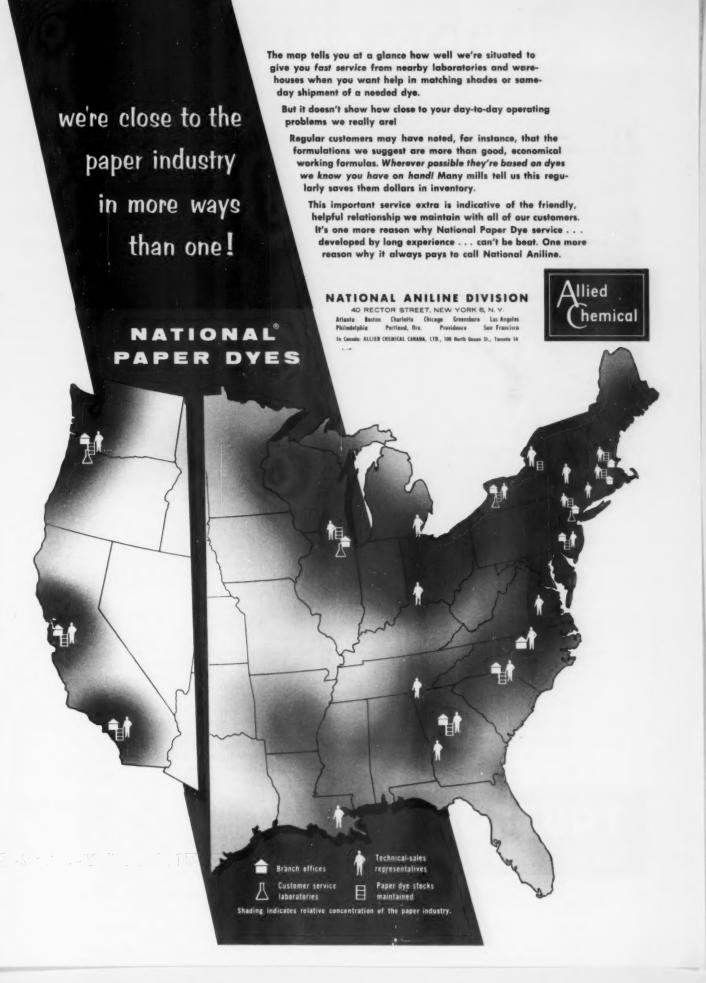
Promoted at Simpson Paper Co.: MAURICE V. EISENMAN from quality control supervisor to quality control director; BOB ROBERTS moves up to quality control supervisor, and TED KOSCHE to asst. quality control supervisor.—Louis H. Blackerby.

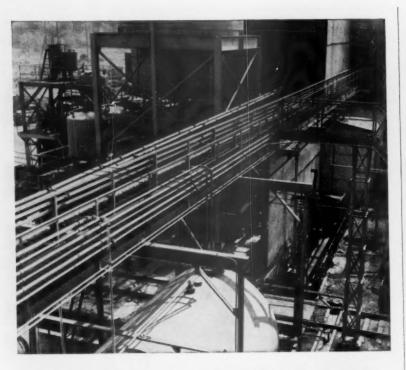
Carl Sholdebrand Dies

One of the pioneer and veteran sulfite men of America, Carl Sholdebrand, 67, died in late August. Since 1947, Mr. Sholdebrand had been pulp mill supt. at Spaulding Pulp & Paper Co., Newberg, Ore. Before that he was sulfite supt. for Publishers Paper Co. (formerly Hawley P. & P. Co.) in Oregon City.

Pulpwood

TERENCE COOPER, formerly a forestry aid for Nekoosa-Edwards Paper Co., has joined Rhinelander Paper Co.'s woodlands staff at Rhinelander, Wis., as a forester. He is a graduate of the Iowa Univ. school of forestry. . . . Boyd C. Wilson has been appointed forester on the staff of the Industrial Forestry Assn. at Nisqually, Wash. . . . W. N. Haynes has been promoted to asst. to the mgr. of Union Bag-Camp Paper Corp.'s Savannah woodlands div.





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Corrosion Conditions!

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- Contains Devran Epoxy Resin
- Resists Chemicals
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- Available in functional, moralebuilding colors
- Chemical resistance effective on wood, metal and masonry surfaces
- Apply by conventional methods including hot spray

Truscon qualified representatives will provide prompt inspection, color guidance and consultation without obligation.





Sidney B. Lewis Becomes Asst. to St. Regis Executive V.P.

Mr. Lewis as assistant to Benton R. Cancell, exec. vice pres. in charge of operations of St. Regis Paper Co., will be responsible for developing broad modernization program for firm's Puget Sound lumber-plywood operations in Washington State. This is a field in which he has held executive capacity since 1938 when he became asst. mgr. of Weyerhaeuser Co. at Longview, Wash.



Axel G. Lindh Transferred

the Land Adjustment div. of the U. S. Forest Service. Since 1944 asst. regional forester in charge of timber management at Missoula, Mont., his new responsibilities include right-of-way procurement, development of cost-use road sharing agreements in intermingled ownerships, land exchanges and acquisitions.

CLARENCE L. FISHER, 82, president of Fisher Forestry & Realty Co., Lyons Falls, N. Y., and "father" of the New York State Fisher Forest Tax Law when a member of the New York legislature, died recently.

T. W. EARLE, Savannah, Ga., gen. mgr. of the Woodlands div. of Continental Can Co. Inc., has been elected a vice pres. of the firm. . . . THOMAS E. COCHRAN, formerly a resident forester for St. Paul & Tacoma Lumber Co. (now a division of St. Regis Paper Co.), has been named district forester at Eugene, Ore., for the Industrial Forestry Assn. . . . LEIF D. Es-PENAS, chief of the physical div. of forest products research at the Oregon Forest Research Center in Corvallis, has been named acting director to succeed John B. GRANTHAM. Mr. Grantham resigned recently to accept the position of chief of forest utilization research at the Pacific Northwest Forest & Range Experiment Station, Portland.

Langston Leader MILL EDITION SAMUEL M. LANGSTON CO. CAMDEN 4, N. J. PAPER MILL EDITION SAMUEL M. LANGSTON CO. CAMDEN 4, N. J.

OCTOBER, 1959

Published for the information of paper and board mills

VOL. 1, NO. 5

Achievement at St. Regis

FINISHING ROOM WORK IS REDUCED

Winder on Paper Machine Produces Clean Cut Rolls And Saves Rewinding Job

A paper machine winder by turning out shipping quality rolls of desired widths and diameters is reducing a finishing room operation at St. Regis Paper Company, Pensacola, Florida.

Before the new winder was installed on the No. 1 Fourdrinier, it was the practice, on stock intended for conversion to counter rolls, to wind off into jumbos to be slit and rewound to specifications in the finishing room.

Heavy Duty Machine

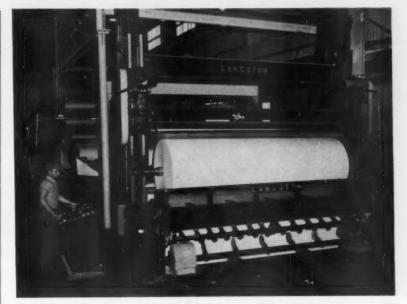
Now a wide variety of paper and board grades is slit and rewound on a heavy-duty, 144-inch wide, 72-inch diameter rewind slitter and winder, built and installed by Samuel M. Langston Company, Camden, N.J.

The new Langston winder is performing satisfactorily, according to St. Regis, turning out tightly wound shipping rolls of uniform density.

In converting orders at the paper machine, the Langston winder is handling paper and board grades ranging from 40 to 300 pound (24 x 36—500 basis). The equipment slits and rewinds rolls up to 60 inches in diameter and down to as narrow as 2½-inch rolls of 48-inch diameters.

Versatility Features

The pushbutton control features of this machine—rider roll control, rewind shaft control, rewind shaft loader



IN OPERATION. Langston heavy-duty, 144-inch wide paper machine winder is reducing the finishing room slitting and winding job at St. Regis Paper Company, Pensacola, Fla.

-contribute sufficient versatility to permit St. Regis to have a limited counter roll operation taking about 30 percent of the paper machine's production.

The winder is currently operating at about 2600-2700 feet per minute to suit the 900 fpm of the Fourdrinier. The Fourdrinier can attain 1200 fpm and the winder 3000 fpm.

Tight Shipping Rolls

The Langston winder's heavy-duty construction and precision manufacture are credited with producing a finished product of tight, clean-cut shipping rolls.

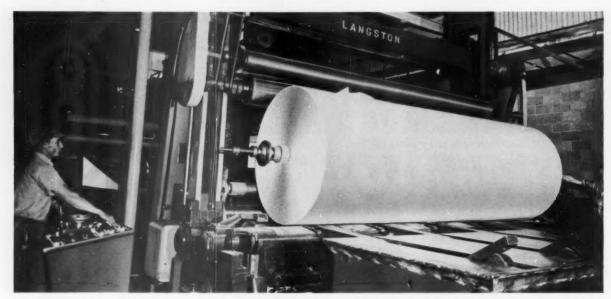
The winder is equipped with a patented roll density controller. This automatically regulates, throughout the buildup on the roll, the effective pressure exerted by the rider roll assembly. It provides uniform nip pressure between the sheet and the extra-heavy, 18-inch rewind drums—in conjunction with the driving effort of the rider roll and the rewind drums—thus assuring uniform density in the rewound rolls.

Langston Roll Drop

Contributing to overall operation efficiency are such features as the hydraulic actuation of raising, lowering and automatic loading of rewind shafts—ranging in diameters from three-inch to eight-inch—also the hydraulic roll ejector, nip guard and roll drop table.

The Langston roll drop table is a heavy duty, mill-type machine with a scissor-type, hydraulically powered lift

(Continued on Page 2)



ROLL EJECTION. Langston roll drop table is in position for rewound roll to be ejected and lowered to floor level. Pushbuttons at console control ejector, roll drop and bridging arms. Roll stops are automatically raised and lowered.

Winder on Paper Machine Saves Finishing Room Job

(Continued from preceding page)

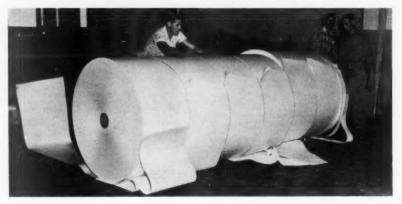
with pushbutton controls from the winder console. It is equipped with automatically controlled roll stops. Arms that bridge between the roll drop and the winder are also pushbutton controlled.

Box Section Construction

In addition air brakes are provided



PREPARING SETUP. Operator shifts slitter heads into position for next run. Pit-type installation eases setup and speeds threadup.



CLEAN SEPARATION. Shipping rolls of up to 60-inch diameters and down to as narrow as 2½ inches with 48-inch diameters are slit and wound on Langston winder at St. Regis. They are of highly uniform density, shear cut and with easy, clean separation as shown above.

to bring the idler rolls and carrier drums to an immediate stop when winder power is shut off—enabling quick threadup and roll changes and contributing to the safety of operation.

The winder machine frames, section in design, are of heavy duty, cast construction. Roll shafts are centrifugally cast steel and balanced for high speed operation. Main winder drum bearings are Timken precision heavy-duty type and all other bearings are SKF heavy-duty. The drive is Westinghouse.

Second Langston Installed

The winder is the second Langston to be installed at the St. Regis, Pensacola mill in the last three years. The first was a 94-inch winder on the Number Two cylinder machine.

It was the performance of the first winder in reducing waste and the number of imperfect rolls and in keeping maintenance downtime at a minimum that contributed to the decision to order the second Langston winder, according to St. Regis. K. C. OSTER, mgr. of Crown Zeller-bach Corp.'s Puget Sound Wood Supply Div., is taking early retirement in January, and will be succeeded by B. E. Brown, timber appraiser of the CZ Portland office.

Alvah W. Blackerby Dies After Idaho Plane Crash

ALVAH W. BLACKERBY, a career forester, 31 years with the U.S. Forest Service, who had just concluded his assignment as supervisor of Nez Perce National Forest in Idaho and was soon to take over larger responsibilities in Washington, D.C., died Aug. 22 in Portland, Ore., from burns received in an airplane crash Aug.

Before he underwent surgery a second time, it had seemed he was on the way to recovery. Alvah, 50 years old, was the brother of Louis H. Blackerby, Western editor for Pulp & Paper and this magazine's representative in Portland, Ore., for many years. Both brothers were from Oregon State College of Forestry.

Alvah Blackerby was one of five men in a tri-motor plane which over-ran a wilderness landing strip near the Idaho-Montana state line, crashed into a stack of gasoline barrels and exploded. Two smoke-jumpers from New York were killed, the pilot and a smoke jumper supervisor were injured.

Mr. Blackerby had transferred to Idaho four years ago after 16 years with the U.S. Forest Service in Alaska. In 1939, he earned a master's degree in forestry at Oregon State after graduating from the University of Oregon. He was born in Portland.

Canada

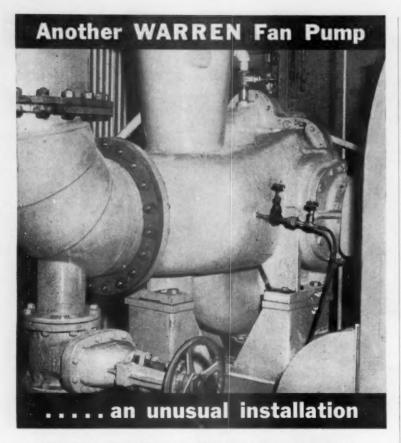
A. C. McGougan, manager, pulp sales, MacMillan & Bloedel, Vancouver, B.C., has resigned to take a new executive position with Abitibi Power & Paper Co. in Toronto. . . George Fletcher, vice president, H. A. Simons, Ltd., Vancouver, B.C., consulting engineers who have designed some of the major mills in the industry in Canada and the U.S. in recent years, has been commuting between the Pacific coast and Scandinavia during the past few weeks. He recently returned home from his second flight to Sweden within a month.

R. M. Schmon has been named assistant to the executive vice pres., The Ontario Paper Co., Thorold, Ont. .

HECTOR D. WRIGHT, gen. purchasing agent, the E. B. Eddy Co., has been elected president, Canadian Association of Purchasing Agents.

CHARLES D. DICKEY, JR., president, B.C. Forest Products, Vancouver, B.C., is heading the industries canvassing division of the United Red Feather Appeal. . . . LYALL DAGG has succeeded Don Carl-





One of the two WARREN type 18-DB-32 double suction dual volute fan pumps installed at St. Regis Paper Co., Bucksport, Maine... an unusual fan pump installation. Notice the side mounting of this bottom suction unit. This specially engineered mounting helped cut piping costs and saved valuable floor space for St. Regis. And because the pump cover can be moved off oversize dowel pins in a horizontal plane, rather than lifted off, the side mounting offers especially good accessibility for a pump of this size. Many such special arrangements are available from Warren.

DIERKS PAPER CO.

Pine Bluff, Ark. 24-DB-22 — 16,000 GPM at 30 ft. head

FIBREBOARD PAPER PRODUCTS CORP.

Antioch, Calif. (6) 20-DB-22 — 13,000 GPM at 39 ft. head

GULF STATES PAPER CORP.

Demopolis, Ala. 16-DB-20 — 10,000 GPM at 155 ft. head

HUDSON PULP & PAPER CORP. Palatka, Fla.

20-DL-22-12,500 GPM at 80 ft. head

ST. REGIS PAPER CO. Bucksport, Me.

(2) 18-DB-32 — 12,500 GPM at 200 ft head



using Warren

Fan Pumpi



WARREN PUMPS, INC. WARREN, MASSACHUSETTS

son, as director of the public relations department, Crown Zellerbach Canada, Vancouver, B.C. The latter resigned to become public relations director of Ford Motor Co. of Canada. Mr. Dagg was formerly in newspaper work.

PALMA LEBORGNE, with a background of 30 years in the manufacture of paper while associated with several companies, has been named paper mill supt. for Donnacona Paper Co., subsidiary of Howard Smith Paper Mills. . . . LEO DUBE, formerly with Consolidated Paper Corp., St. Lawrence and Quebec North Shore Paper Co., has been made assistant paper mill supt., and ROBERT D. FELS is the company's new board mill production supt. A graduate of Queen's University where he received a degree in chemical engineering, Mr. Fels joined Donnacona in 1955 after four years with Dominion Tar & Chemical Co. . . . WALTER SHISKO has been appointed mill chemist at Donnacona. Another Queen's graduate, he joined Donnacona this year after several years in chemical and paper industries.

-Charles L. Shaw.

Snyder Retires at Powell River

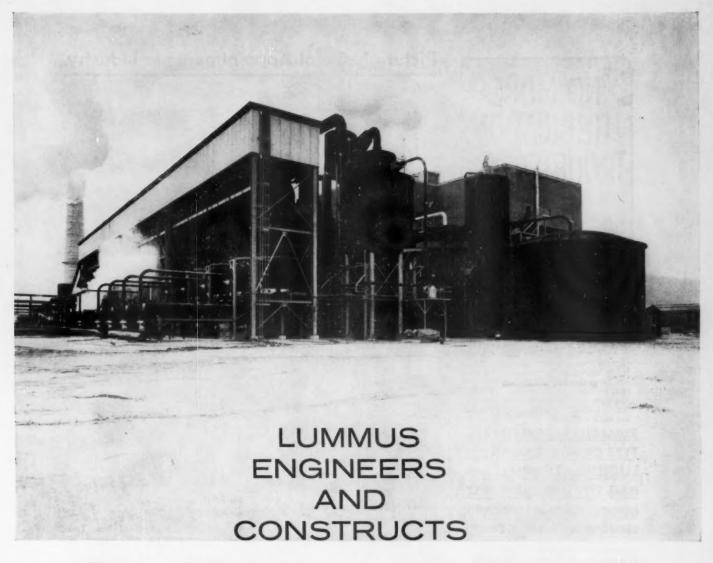
Walter Snyder, veteran papermaker, has retired as paper mill supt. for Powell River Co. Ltd. He joined the firm in 1913 soon after the original mill, now among the world's largest, was built on the British Columbia coast.

During his long service with Powell River, Mr. Snyder participated in the installation of four large machines and watched production climb from 200 daily tons in 1913 to more than 1,500 tons today. He began his career at the age of 17 with Crown Willamette (now Crown Zellerbach) at Oregon City, Ore.

CPPA's New Committee

The Corrugated Containers Committee is the latest addition to the standing committees of the Technical Section, CPPA. The group is cooperating with the Corrugated Containers div. of TAPPI in sponsoring the 10th Corrugated Containers Conference, at the Royal York Hotel, Toronto, October 10-13, 1960.

First chairman is R. H. McGEE, Bathurst Power & Paper Co. Members include: R. G. MACNEILL, Gair Co. of Canada; VERNON GORDON, Pembroke Shook Mills; H. J. Ostrowski, Hinde & Dauch Paper Co. of Canada; A. J. JORDAN, Hygrade Containers; H. A. Buckley, Standard Paper Box Mfg. Ltd.; Donald Black-BURN, Martin Paper Products Ltd.; T. Monaghan, Sherbrooke Paper Products; P. C. READ, Crown Zellerbach Canada; A. A. MACDONALD, Hendershot Paper Products; J. M. Dunkin, Maritime Paper Products; F. J. RODERICK, Wilson Boxes, and J. McK. LIMERICK, liaison councillor, Bathurst Power & Paper.



Buckeye Cellulose Corporation's Wood Pulp Expansion

NATION'S OLDEST PRODUCER OF CEL-LULOSE PULP DOUBLES PRODUCTION CAPACITY OF FOLEY, FLORIDA, PLANT. The Buckeye Cellulose Corporation, America's oldest yet fastest growing cellulose pulp producer, will soon put into operation a new \$20,000,000 wood pulp unit at Foley, Florida, thus completing an expansion program which doubles the plant's original production capacity.

The Lummus Company engineered and constructed the process units for these expanded facilities which assure Buckeye's customers a steady supply of highest quality Southern pine pulp. This new Lummus-designed plant is still another step in the growth of a company with 37 years of experience in producing cellulose pulp. Buckeye has the world's most complete line of celluloses, being the only producer of cellulose from both wood and cotton linters. Its cotton linter pulp mill was established in Memphis, Tennessee, in 1921.

Highest standards of processing are demanded by Buckeye to provide the best in cleanliness, brightness, strength and other specific qualities desired by users of Buckeye pulp. Long a researchminded company, Buckeye spends a higher percentage of sales on research activities than any other pulp producer.

In addition to engineering and constructing the process units for the Foley expansion, Lummus hired and coordinated various subcontractors for other portions of the plant. In spite of the complexity of such a large program, Lummus met the construction schedule and the new mill is assured a smooth start-up.

The Lummus Company has designed, engineered and constructed over 800 complete plants for the process industries throughout the world in the last 50 years. Lummus world-wide experience is at your disposal.



ENGINEERS AND CONSTRUCTORS FOR INDUSTRY THROUGHOUT THE WORLD 385 MADISON AVENUE, NEW YORK 17, N. Y.

HOUSTON . WASHINGTON, D. C. . MONTREAL . LONDON . PARIS . THE HAGUE . MARACAIBO

STEPHENS-ADAMSON MFG. CO. Conveyor Mfr., Aurora, III.

"LUBRIPLATE Lubricants satisfy the 'one-shot' requirements of our conveyor idlers. LUBRIPLATE effectively lubricates each bearing in turn and flows through the hollow shaft to the next bearing. We do not know of a single case of bearing trouble through faulty lubrication where LUBRIPLATE has been used."

REGARDLESS OF THE SIZE AND TYPE OF YOUR MACHINERY, LUBRIPLATE GREASE AND FLUID TYPE LUBRICANTS WILL **IMPROVE ITS OPERATION AND** REDUCE MAINTENANCE COSTS.

LUBRIPLATE is available in grease and fluid densities for every purpose . . . LUBRIPLATE H. D. S. Motor Oil meets today's exacting requirements for gasoline and diesel



For nearest LUBRIPLATE distributor see Classified Telephone Directory. Send for free "LUBRIPLATE DATA BOOK" . . . a valuable treatise on lubrication. Write LUBRIPLATE DIVISION, Fiske Brothers Refining Co., Newark 5, N. J. or Toledo 5, Ohio.



Picture News of Appointments in Industry



Hugh P. Quinn Joins Lindsay Wire

Mr. Quinn has joined the technical services staff of Lindsay Wire Weaving Co. of Cleveland. He was formerly with Ross Midwest Fulton Corp.



Robert G. Taber, New East Representative for Beloit

Francis G. Ramsden, Beloit Iron Works sales manager, announces Mr. Taber's appointment. The latter has been with Beloit for 15 years as an engineer and salesman. He will make his home in Chatham, New Jersey.



Huyck Appoints Stanley

JAMES E. STANLEY has been appointed felt sales engineer by Huyck Felt Co. His territory will include Virginia, W. Virginia and portions of Tennessee and N. Carolina. A graduate of Lowell Institute of Technology, Mr. Stanley joined the company in 1955, working in all phases of felt design and manufacture. Following service with the armed forces, he resumed his training at Rensselaer, N. Y., and at paper mills throughout the country.



New in South

BENNY F. HOWELL, a graduate of the Univ. of Tennessee, and who was incor-rectly identified in last month's issue, will represent Arnold Hoffman & Co., Inc. in the Southeast.



Philip D. Case Covers **New York for Bauer**

Mr. Case is a graduate of New York State College of Forestry, worked for West Virginia Pulp and Paper Co. at Mechanicville, N.Y. will be sales repre-sentative for The Bauer Bros. Co. in the New York State area. New York State area.





Neilson

Representing Lamb-Grays Harbor In Lake States and South

RAYMOND O. REED, previously sls. engineer and mgr. of engineering for this Hoquiam, Wash. producer of paper-pulp finishing equipment, transfers to Neenah, Wis. as sales representative. ROBERT F. NEILSON, formerly project engineer for Buckeye Cellulose, becomes sales engineer for Lamb-Grays Harbor at Memphis, Tenn.



You'll get extra strength for all your lines when you add Accostrength Resin to your process—especially in cases where critical specifications must be met.

And, Accostrength gives you 3 additional benefits...

- 1. Accostrength improves wet web strength—minimizes costly paper breaks in the wet end of the machine. Customer runs have proved this too.
- 2. Accostrength allows greater use of shorter hardwood fibres to meet strength tests. Saves you money, here!
- 3. Accostrength improves draining on wire—therefore requires less steam in the dryers permitting machine speedup and increased paper production. Another money saving feature!

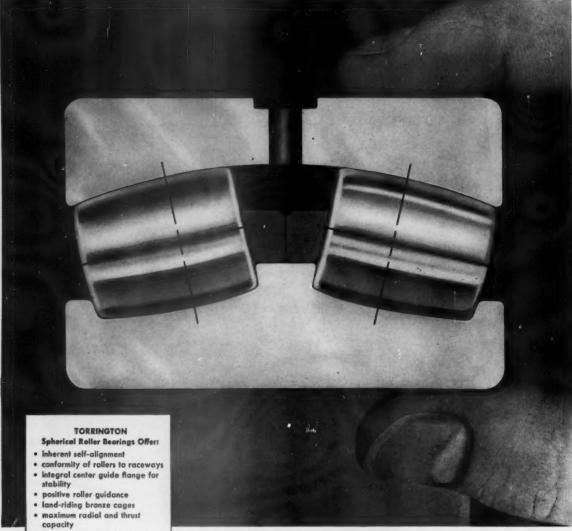
For full information about Accostrength, write Cyanamid for Technical Bulletin #33.

AMERICAN CYANAMID COMPANY

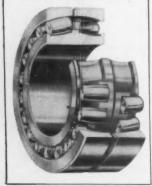
CYANAMID

PAPER CHEMICALS DEPARTMENT, 30 ROCKEFELLER PLAZA, NEW YORK 20, N. Y.

PULP & PAPER - October 1959



- controlled internal clearance
- electronically selected rollers
- even load distribution
- long, dependable service life



Send for new Torrington Spherical Roller Bearing Catalog #25

Shaped for Stability!

The asymmetrical shape of each roller in Torrington Spherical Roller Bearings contributes directly to operating stability and long service life.

The maximum roller diameter is not at the center of the roller. Located towards the center flange, it insures geometric positioning of the roller for positive guidance with free rolling action.

The roller shape also approaches that of a tapered roller. Lines extended from the roller-to-race contact zone converge at the roller and bearing axes. This approach to true conical rolling action further assures stability.

These are two more reasons why Torrington Spherical Roller Bearings operate cooler, quieter and with greater stability. For the ultimate in bearing performance and service life, always specify *Torrington* Spherical Roller Bearings. The Torrington Company, South Bend 21, Ind.—and Torrington, Conn.

TORRINGTON BEARINGS

Every Basic Type of Anti-friction Bearing

SPHERICAL ROLLER . TAPERED ROLLER . CYLINDRICAL ROLLER . NEEDLE . BALL . NEEDLE ROLLERS . THRUST

PULP & PAPER

New Equipment Section

Pachuca Pump

. . . All-Titanium Fabricated



TITANIUM IMPELLERS. Impeller at left was cast, the one at right fabricated.

Applications: To clarify a highly-corrosive liquor in a pachuca tank—a wooden vessel approximately 30 ft. in length.

Advantages: Titanium was selected for this specially-fabricated pump because of its exceptional resistance to corrosion. It is resistant to many acids, chlorides, hypochlorites and salts.

Specifications: In process, the titanium pachuca pump is suspended from the vessel top-head. One end of a 10-in. dia. 25-ft. long rubber suction hose is attached to the bottom of the pump, the other end immersed in the unclear electrolytic solution. The pump pulls the corrosive medium up through the rubber hose and sprays it back into the vessel. This continuous agitation causes impurities to float to the top of the liquor, where it then can be skimmed off. The unit measures 23% in. in length by 14-in. dia, impeller with a 10-in. suction.

Supplier: Pfaudler Co. (a div. of Pfaudler Permutit Inc.), Rochester 3, N. Y., Tel.: BEverly 5-1000.

Flexible Cushion Couplings

Applications: For a wide range of industrial applications.

Advantages: The expanded line of Para-flex couplings (two new sizes have been added) accommodates angular misalignment, parallel misalignment and end float—singly or in any combination. The couplings are also said to cushion shock loads and to diminish torsional vibration. No lubrication is required, and the flexible element may be changed without re-

moving flanges from shafts.

Specifications: The units range from fractional to 190 hp per 100 rpm. New Model PX24 is the largest in the line and is capable of delivering up to 2,000 hp at 1,080 rpm.

Suppier: Dodge Mfg. Corp., Mishawaka, Ind. (ask for Bulletin A669C.)

Mechanical Trash Rake ... Operates Automatically



Applications: For cleaning debris from trash racks or screens in front of gates where water is required in volume.

Advantages: The rake is self-guiding, self-clearing and self-dumping and is said to provide thorough removal of trash ranging from light debris to heavy waterlogged materials. The units thus safeguard gates, valves, pumps, turbines and other equipment. They can be made to start and operate automatically on signal from remote control or differential water level.

Specifications: Sizes, widths and depths up to 100 ft. are available for installation either during construction or after completion.

Supplier: Frank W. Stuker & Associates, 300 Delaware Ave., Buffalo 2, N. Y., Tel.: CL 4642.

Refiner-Jordan

. . . Easy Conversion Claimed



Applications: For use in stock preparation systems.

Advantages: The new HD and HDM Stock-Maker refiner and Stuff-Maker jordan is said to be improved and simplified with a resulting 20% reduction in initial investment. The refiner retains the same principles of reverse-flow sealed pressure beating treatment.

A simple filling change in the Stock-Maker converts it into a Stuff-Maker jordan with standard flow for cutting treatment. The integral motor arrangement is optional and reduces space requirements and maintenance problems. According to the manufacturer, fillings may be changed in two hours or less, and down-time is at a minimum. Fillings are precision-machined and dynamically balanced. There is interchangeability of fillings between the new model and existing Stock-Makers.

Specifications: The Stock-Makers and Stuff-Makers are to be available in two sizes. No. 6 employs a 150- to 200-hp motor, while No. 8 has a 300- to 350-hp motor.

Supplier: Modern Machines Co., 3420 S. W. Macadam, Portland 1, Ore., Tel: CApitol 2-9355; and Millspaugh Ltd., Alsing Road, Sheffield 9, England, and William Kennedy & Sons Ltd. Owen Sound, Ont., Canada.

Short-Coupled Turbine Pumps



Applications: For cooling towers, circulating or process pumping, lake and river intakes, boosters, fire pumps, drainage, pipeline boosters, filter washing and dewatering.

Advantages: Space-saving is accomplished through integral construction of motor support and discharge head. Because its pumping element is usually submerged, the unit is said to seldom need priming. Its discharge column can be varied for changing requirements, and its head and motor can be located above highwater to avoid flooding and motor damage. Specifications: The units are available

Find Out how others are solving INDUSTRIAL TREATMENT PROBLEMS



Right now, send for your free copy of the current and future issues of "Water & Waste Treatment News." This new publication is packed with helpful stories on how modern plants are saving by salvaging materials...how they are cutting anti-pollution waste treatment costs. Write CHAIN Belt Company, 4691 W. Greenfield Ave., Milwaukee 1, Wis.

CHAIN BELT

NEW EQUIPMENT & SUPPLIES

in ratings of from 20 to 8,000 gpm at heads to 400 ft. and over depending on the number of stages. Available with A-C hollow-shaft ac motors, the pump has no open coupling.

Supplier: Allis-Chalmers Mfg. Co., 1126 So. 70th St., Milwaukee 1, Wis., Tel: SPring 4-3600; and Oy Tekno-Montan AB, Erottajankatu 15-17, Helsinki, Finland.

Laboratory Refiner . . . Wide Horsepower Range



Applications: For pulping processes and strength development studies on raw, steamed or semi-chemically cooked chips; fully cooked pulp; cooked straw, wastepaper, Asplund fiber and other materials.

Advantages: The Sprout is suitable for use over a wide range of horsepower ratings and incorporates many features of the larger single-disc refiners. The unit is said to provide a refining action that simulates with one or more passes the uniform end products obtained from production machines, and to operate with equal efficiency on dry or fluid feed, hot or cold, highor low-consistency. Extremely heavyduty construction insures equalization of stresses and keeps refining plates in true parallelism during operation.

Specifications: For continuous operation, the horsepower range is 25 to 40; for intermittent, 40 to 65. The refiner is available in standard as well as acidresistant construction; either a simple feed spout, a hand-driven throat screw feeder or a V belt-driven feeder. A magnetic vibratory laboratory feeder is available where it is necessary to supply a constant flow of material to the motor-driven throat screw feeder or to the feed spout. The unit is 18% in. high, 18 in. wide and 48 in. long with the hand-driven throat screw feeder. Shipping weight (less motor) is approximately 500 lbs.

Supplier: Sprout, Waldron & Co. Inc., 130 Logan St., Muncy, Pa., Tel.: 6-3111; Leje & Thurne AB, Stockholm 16, Sweden; Reidar Vefling, Piazza Principessa Clotilde 6, Milan, Italy, and C. T. Takahashi & Co. Ltd.,

Tokye, Japan.

Speed Reducers

. . . an Expanded Line



Applications: For speed reduction at ratios of up to 25:1.

Advantages: These shaft-mounted units have been improved in design without changing overall dimensions or horsepower ratings. The line now

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Write today for more details to KOPPERS COMPANY, INC., Fast's Coupling Dept., 5110 Scott Street, Baltimore 3, Maryland.

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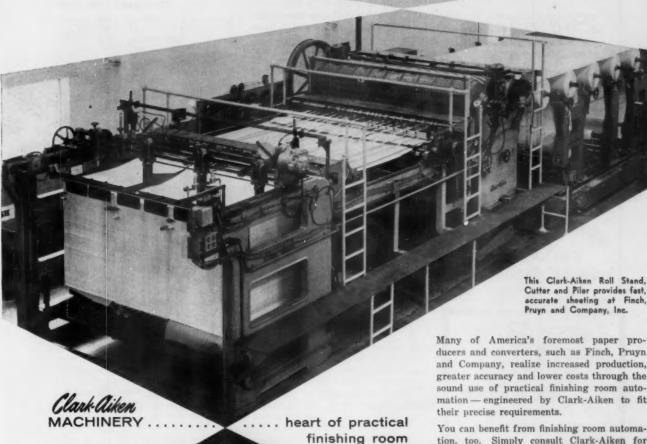
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automation

Mr. A. M .Reed, Finishing Manager for Finch, Pruyn and Company, Inc., Glens Falls, New York, Reports on their Clark-Aiken Cutter's performance as follows:

"We are at this time eminently satisfied with the performance of our Clark-Aiken rotary cutter. We sheet offsets, mimeos, duplicators, bonds, printing and book grades varying in basis weights from 30 to 100 pounds.

"One extremely important factor, we feel, is that our operating personnel are very pleased with the way the machine performs. One of our head rotary cuttermen tells us that he thinks the Clark-Aiken Cutter is very easy to operate. He says the slitters are easy to set up, the large number of size changes are easy to accomplish and better control of sheet wrinkles is effected.

"This machine adequately meets our present needs and requirements. Personally, I feel that we have made a wise choice in its purchase."

Many of America's foremost paper producers and converters, such as Finch, Pruyn and Company, realize increased production, greater accuracy and lower costs through the sound use of practical finishing room automation - engineered by Clark-Aiken to fit

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From blueprint to line production, and after, you get expert help and service from highly skilled Clark-Aiken personnel.

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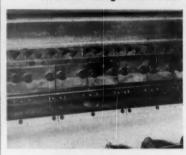
Surveys & Reports

GREENVILLE, SOUTH CAROLINA includes a new 25:1 double reduction series in eight sizes. It is said that engineers have devised an improved method of attaching the torque arm to the reducer case, employing a saddletype bracket for greater strength and better balance.

Specifications: Output speeds range from 12 to 400 rpm. Giant of the series has a reduction ratio of 24.73:1 and is rated at 154 hp at 75 rpm. Seven other sizes with torque arms are available in either 15:1 or 25:1 ratios along with three flange-mounted reducers. The new 25:1 units are said to give 40% lower output speeds with identical motor speeds and V-drive ratios. When output speeds are the same, lower ratio V-drives may be used with 25:1 reducers at reduced cost.

Supplier: Dodge Mfg. Corp., Mishawaka, Ind.

Perforating Head ... Interchangeable Blades



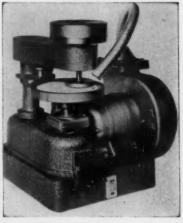
Applications: For producing a slitscore tear-off perforation on roll toilet tissue and toweling.

Advantages: The Slip-Score unit, which can be installed on any make of tissue and towel roll machines, makes use of solid interchangeable blades mounted in the bed-roll for maximum protection. These blades are set at an angle to the anvil blades to minimize wear and keep drive power requirements at a minimum. The anvil blades are mounted in a fixed position and pivot on a fulcrum during opera-

tion. This is said to eliminate the need for flexing blades. Rapid disengagement of the entire perforating head is by means of air cylinders.

Supplier: Dietz Machine Works Inc., 126 W. Fontaine St., Philadelphia 22, Pa.

Rub Proofness Tester ... Developed in England



Applications: To measure the rub proofness of print on paper and board; also to measure transfer of color from printed or coated materials during rubbing (rubfastness).

Advantages: Developed by the Printing, Packaging & Allied Trade Research Assn. of Great Britain, the unit is said to lend itself as a testing medium for investigating, under carefully controlled conditions, new procedures or techniques that involve a rubbing action. Uniform rubbing, it is claimed, is obtained in all directions over the entire surface of the test disc. Specifications: Two discs rotate in plane and contact at the same angular speed. Pressure between the discs is controlled by a dead weight on the upper disc.

Supplier: Testing Machines Inc., 72 Jericho Turnpike, Mineola, N. Y.,

Tel: Ploneer 7-7466.



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Canada Pat. 1955 Other pat. pdg.

RYKON Grease

passed this test at Corn Products Company Situation: The springs in the grease chargers on expeller machines at Corn Products Company's Argo, Illinois, plant are under extra heavy tension. Due to this tension, oil formerly separated from the grease thickener in the grease cups. Bearings did not receive proper lubrication and the cups filled with grease thickener residue. The system needed cleaning every three months. Each time, large amounts of residue were found. Ten special-purpose greases were tried in an effort to solve the problem.

What was done: A Standard Oil lubrication specialist working with Corn Products' plant maintenance people recommended RYKON Grease #2 E.P. The system now needs cleaning only every six to nine months. Very little residue is found. Now RYKON Grease has become one of the important lubricating greases in use at Corn Products' Argo plant.

RYKON Grease is formulated with a unique non-soap organic thickener. The fibers of this thickener hold RYKON's fine quality base oil firmly in suspension The grease resists water washing, high temperature and dirt contamination while providing superior lubrication to bearings of all types.

What you can do: Get more facts about RYKON Grease from the Standard Oil office nearest you anywhere in the 15 Midwest and Rocky Mountain states. Or write Standard Oil Company (Indiana), 910 S. Michigan Ave., Chicago 80, III.



NEW LITERATURE

New Booklet Available

A fascinating new booklet by Wausau Paper Mills Co., entitled "America on Paper," highlights the importance to our civilization of paper-the often taken-forgranted element that documents our culture and preserves complex communications today. For example, presidential note paper preserved the Gettysburg address. Excellent artwork in the booklet illustrates its text.

For a complimentary copy write to the firm at Brokaw, Wis.

Sheet Cutters

An eight-page bulletin describes the firm's complete line, together with technical data and specifications. The brochure demonstrates some basic characteristics of standard paper and board cutters. Design features are shown in a two-page diagram. Optional accessories are completely described, including air-operated slitters, special unwinds, lift truck, etc. Contact Jagenberg-Werke AG, Himmelgeisterstr. 107, Düsseldorf, Germany; American Paper & Pulp Co. Inc., 300 Fourth Ave., New York 10, N. Y., U. S. A.

Logging Logic

Logging practices from the tree to the mill are described in the recently-issued, "Logging Logic." On-the-job photographs demonstrate the latest methods of felling, clearing, loading and unloading. Four pages are devoted to crawler tractors and auxiliary equipment. Write John Deere Industrial div., 3300 River drive, Moline,



Most Modern Equipment Available

will be installed at the new 17,000-sq. ft. addition (seen in construction stage above) to Wisconsin Wire Works' plant in Appleton, Wis, According to President James E. Watson, "installations will include the most modern machinery and equipment available for controlling the quality of fine wire used in the weaving of Fourdrinier wire cloth."

Correction . . . **Get our Bearings Straight**

In our August issue story on the new Crown Zellerbach mill at St. Francisville, La., we reported that the roller bearings on the machine were supplied by SKF. But the truth is, they were supplied by Torrington.

Bearings for the giant supercal-enders as well as other equipment in the mill were equally supplied by both Torrington and SKF.

CHEMICALS

Melamine Plant for South

Plans to build a multimillion-dollar melamine plant somewhere in the South have been announced by Reichhold Chemicals Inc. Initial capacity of the plant that is scheduled to go on stream in early 1961 will be 20,000,000 lbs. annually. It is being designed for eventual expansion to 50,000,000 lbs. According to the firm, "demand for this chemical and for melamine molding compounds and resins is increasing rapidly from manufacturers of plastic products, laminates, surface coatings and textiles.

New Starch Series

A new series of non-congealing starch products developed by A. E. Staley Mfg. Co., Decatur, Ill., "is showing distinct advantages in a wide range of surface sizing and coating applications in the paper industry." The new series of Mira-Film acetate gums ranges from high to low viscosity. The gums are said to make pastes of excellent flow but with minimum penetration into body stock. Technical data sheets are available.

Dow Office is Moved

Dow Chemical Co.'s Northwest sales office in Seattle, Wash., has moved to new quarters located in the Pacific Mutual Bldg. at 307 Broad St. FRED R. ARM-BRUSTER, mgr., describes the arrangement as unique in that the entire operations area is laid out around a teletype communications hub which relays customer orders to Dow production locations by a private-line teletype network.

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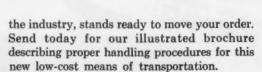
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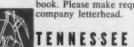
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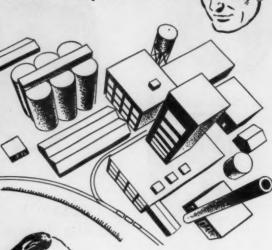


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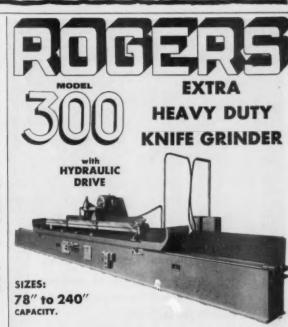
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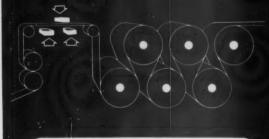
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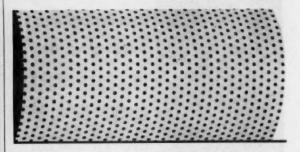
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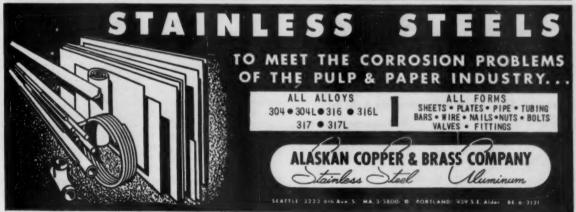
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The Last Word PAPER

Editors' Page

PULP & PAPER's Public Interest Award for "Service"

PULP & PAPER magazine and its affiliated publication. The Timberman, and one Canadian publication, British Columbia Lumberman, were the only three magazines in all forest industries to have received the Public Interest Awards of the National Safety Council for 1958 for "exceptional service to safety" and "outstanding leadership."

PULP & PAPER has received this award for three different years, now, and is proud to be selected from all the magazines in this industry.

Out of a field of about 600 specialized magazines, there were just 44 to receive the Safety Council's award for last year. PULP & PAPER, as one of these select 44, is happy it was able to contribute to such a cause. Among general circulation magazines, 14 received the award. Fifty-three newspapers and 180 radio and TV stations were among others honored.

We have always felt that PULP & PAPER should devote adequate space to worthwhile safety activities, especially information which is practical and helpful to the mills, not only from humanitarian reasons but because of its economic importance to the successful operation of this industry.



NATIONAL SAFETY COUNCIL

488 NO. MICHIGAN AVE. CHICAGO II. ILLINOIS

Mr. Albert W. Wilson Editor Pulp and Paper 1791 Howard Street Chicago 26, Illinois

Dear Mr. Wilson:

It is my pleasure to inform you that your organization has been woted the National Safety Council's Public Interest Award for 1958.

We here at the Council know all you have been doing for safety, and we are delighted that the judges agreed.

I am sure you feel, as we do, that there is another dividend as a result of your safety efforts -- the knowledge that you have helped prevent many accidents.

Many thanks for your support.

Sincerely. oward Pyle Howard Pyle President

National Safety Congress Will Take Over Chicago, Oct. 19, in a Worthwhile Activity

The 47th annual National Safety Congress again this month (Oct. 19-23) will take over a goodly portion of six hotels in Chicago for its multi-event performance. It is gratifying to witness each year the very important and active role which pulp and paper and other forest industries take in these worthwhile activities.

From 12,000 to 14,000 delegates will swarm into the Chicago Loop, about three-fourths from industries. About 300 will come from pulp and paper mills and their logging

The sponsor, the National Safety Council, is now a firmly established working institution on the American scene and it has proved its merit time after time in the industrial world. One of the most significant developments in recent years is the increasing participation of top management. This is true in the Pulp and Paper Section, as well as in others.

This year, for example, Harry H. Saunders, vice president of St. Joe Paper Co., is coming to Chicago from his Florida bailiwick to keynote the section's program with an address on Mon., Oct. 19 at 2:15 p.m. International Paper Co. is sending its general counsel from Mobile Southern Kraft headquarters, Henry M. Aldridge, to speak at the luncheon on Thurs., Oct. 22, and a barrister's viewpoint of this costly safety problem for industry should be interesting. In between the pulp and paper industrial relations specialists have an interesting program, and meanwhile in another section for loggers, the pulpwood men are always the leaders.

Russia and "The Great Thaw"

The world is "growing smaller" so rapidly that we must wonder what further great changes are coming in the near

One great change in the making involves the relations between the Western Powers and Soviet Russia. The great "thawing" of the cold war or the cold peace will un-

doubtedly become the No. 1 news event of 1959.

The heat for this great "thaw" is being provided only by the increasing exchange of visits of peoples of both countries and by the free exchange of views and informa-

We know, of course, that this friendly interchange can only really be useful if it fosters mutual respect and knowledge that one nation of 208,000,000 (Russia) and another of 170,000,000 (U.S.A.) cannot impose its will upon the other by force without risking worldwide disaster. This mutual respect and even friendship could then become the greatest deterrent to World War III.

In the July, August and September issues of this maga zine we published a series on first hand and strictly objective reports on Russia and its pulp and paper industry. This is a small contribution, of course, to this process of interchange of information-in our case, at least, we are pleased to say-factual, unbiased information. Many readers have written us to say they, too, were pleased to find these reports were objective.

Last month's article described a visit to a Russian paper mill near Leningrad by the editor, Albert W. Wilson. The other articles, written on his Russian trip, reveals a picture of a Russian nation which is committed to "catching up" with America and its European neighbors in pulp and paper production and quality. More articles will come.

When Russia has achieved its goal of a 9% to 10% increase in paper production each year for seven years, it will still be producing only about one-fourth as much paper as the U.S.A. produces today. But in a year or two it may pass Britain and Japan—and become third in production after U.S.A. and Canada. The real test, however, will be what kinds of paper-what grades, and what they contribute to living standards-not necessarily how much tonnage.

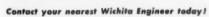




Wichita Clutches also chosen by Fleming & Sons, Inc. to lower maintenance on this calender drive . . arrows point to cutter drive clutches

Fleming & Sons, Inc., paper manufacturers in Dallas, Texas, have installed several Wichita Clutches and Brakes as a part of an intensive modernization program to reduce maintenance costs. The Wichita equipment is proving dependable according to plant engineer, Walter Alderfer.

If you are having a clutching or braking problem, it will pay you to call in a Wichita Engineer to work out a profitable solution.



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